Sr. Jaja Rajat. 1827

# GENERAL ZOOLOGY,

*or*

## *SYSTEMATIC NATURAL HISTORY*

*by*

GEORGE SHAW, M.D. F.R.S. &c.

*WITH PLATES*

from the first Authorities and most select specimens

*Engraved principally by*

M[r]. HEATH.

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VOL. III. Part I.

AMPHIBIA.

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1802.

# GENERAL ZOOLOGY.

VOLUME III.—PART I.

## *AMPHIBIA.*

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1802.

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ERRATA.—VOL. III. PART I.

P. 153, l. 12, for *hypochondiorum* read *hypochondriorum*.
P. 222, l. 15, for *integerinea* read *integerrima*.

*N.B.* In vol. II. part II. at page 329, l. 10, for *feet* read *hands*. And in vol. I. part I. at page 108, l. 15, for *before* read *the fore*.

## *Directions for placing the Plates in vol. III. part I.*

The Vignette represents a remarkable species of Lizard (perhaps a variety of L. Seps) in its natural size: colour dark brown above, yellowish beneath: feet all tetradactyle, with the two middle toes on each foot long, the others very short, all furnished with claws.


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*** *The fourth and succeeding volumes of this work will be published with all reasonable expedition.*

# *AMPHIBIA.*

THE title *Amphibia* applied to this class of animals by Linnæus, may perhaps be considered as not absolutely unexceptionable; the power of living with equal facility both in land and water being not granted to all the animals which compose it. Yet, since it is certain that the major part are found to possess that faculty in a considerable degree, the title may be allowed to continue.

The Amphibia, from the peculiar structure of their organs, and the power which they possess of suspending respiration at pleasure, can not only support a change of element uninjured, but can also occasionally endure an abstinence which would infallibly prove fatal to the higher order of animals.

It has been a general doctrine among anatomists, that the hearts of the Amphibia were, in the technical phrase, unilocular, or furnished with only one ventricle or cavity: a doctrine maintained by many eminent anatomists, and, in general, assented to by the greatest physiologists, as

Boerhaave, Haller, &c. &c. and only occasionally called in question on viewing in some animals of this tribe a seemingly different structure. Thus the French Academicians of the seventeenth century pronounce the heart of an Indian land tortoise, which they examined, to have, in reality, three ventricles instead of one. Linnæus, in his Systema Naturæ, acquiesces in the general doctrine, and accordingly makes it a character of this class of animals. Among later physiologists, however, there are not wanting some who think it more correct to say, that the hearts of the Amphibia are in reality double, or furnished with two ventricles, with a free or immediate communication between them.

The lungs of the Amphibia differ widely in their appearance from those of other animals; consisting, in general, of a pair of large bladders or membranaceous receptacles, parted, in the different species, into more or fewer cancelli or subdivisions, among which are beautifully distributed the pulmonary blood-vessels, which bear but a small proportion to the vesicular part through which they ramify; whereas, in the lungs of the Mammalia, so great is the proportion of the blood-vessels, and so very small are the vesicles, or air-cells, that the lungs have a fleshy rather than a membranaceous appearance. In the Amphibia, therefore, the vesicular system may be said greatly to prevail over the vascular; and in the Mammalia or warm-blooded animals, the vascular system to prevail over the vesicular.

Many of the Amphibia are possessed of a high degree of reproductive power, and will be furnished with new feet, tails, &c. when those parts have by any accident been destroyed. Many are highly beautiful in their colours, as well as elegant in their forms; while others, on the contrary, are, in the common acceptation of the words, extremely deformed, and of unpleasing colours. Their bodies are sometimes defended by a hard, horny shield or covering; sometimes rather by a coriaceous integument; sometimes by scales, and sometimes have no particular defence or coating; the skin being merely marked by soft, pustular warts or protuberances, more or less visible in the different species.

The bones of the Amphibia, except in a very few instances, are of a more cartilaginous nature than in either the Mammalia or Birds: many species are destitute of ribs, while others have those parts very numerous: some are furnished with formidable teeth; others are toothless: some are fierce and predacious; other inoffensive. Few, except among the Serpent tribe, are of a poisonous nature; the general prejudice against them having arisen rather on account of their form, than from any real poisonous quality; but among the Serpents we meet with some species possessed of the most dreadful poison, as well as with the power of applying it with fatal force to the animals which they attack. The number of poisonous Serpents is, however, not so great as was formerly imagined; perhaps not more than a sixth

part of the whole number of known species being of that character.

Among no animals do we meet with beings of a more singular form than in the Amphibia; some of which present appearances so unusual, so grotesque, and so formidable, that even the imagination of the poet or painter can hardly be supposed to exceed the realities of Nature.

The Amphibia in general are extremely tenacious of life, and will continue to move, and exert many of their animal functions, even when deprived of the head itself. The experiments which have been occasionally made on these subjects, can hardly be recited without horror. The natural life of some of the Amphibia, more particularly of the Tortoise tribe, is extremely long; and even to the smaller tribes of Frogs and Lizards a considerable space seems allotted. The same is also highly probable with respect to the Serpent tribe.

By far the major part of the Amphibia are oviparous, some excluding eggs covered with a hard or calcareous shell, like those of birds; others such as are covered only with a tough skin, resembling parchment; and in many they are perfectly gelatinous, without any kind of external covering, as in the spawn of the common Frog. Some few are viviparous; the eggs first hatching internally, and the young being afterwards excluded in their perfect form, as in the Viper, &c. &c. In cold and temperate climates, most of the Amphibia pass the winter in a torpid state; and that sometimes in a degree of cold which would seem

but ill calculated for the preservation of animal life. The common large water-newt in particular is said to have been occasionally found completely imbedded in large masses of ice, in which it must have remained inclosed for a very considerable period; and yet, on the dissolution of the ice, has been restored to life.

The Amphibia may be divided into four distributions, viz. *Testudines*, *Ranæ*, *Lacertæ* *, and *Serpentes*; or *Tortoises*, *Frogs*, *Lizards*, and *Serpents*.

The animals belonging to the three former of these divisions constitute the order entitled REPTILIA, containing the *Amphibia Pedata*, or *Footed Amphibia*. The last division, or that of *Serpents*, constitutes the order SERPENTES, containing the *Amphibia Apoda*, or *Footless Amphibia*.

* The genus *Draco* is here supposed, in a general view, to be included among the Lizards, though in the strictness of systematic arrangement, it must be separated from them.

# *AMPHIBIA.*

ORDER

## REPTILIA.

### TESTUDO. TORTOISE.

*Generic Character.*

*Corpus* caudatum, lorica ossea aut coriacea superne et inferne, vel squamis superne obtectum.
*Oris* mandibula superiore inferiorem pyxidum instar claudens.

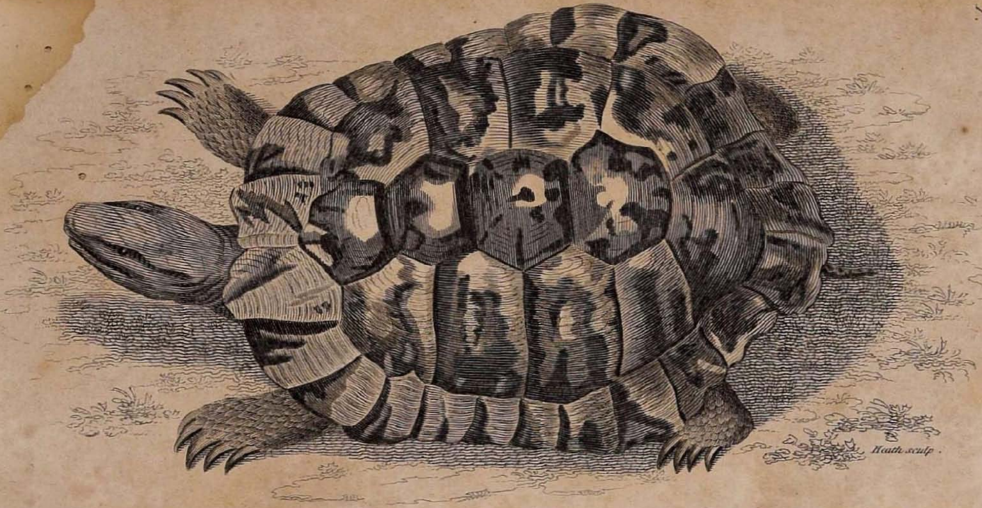
*Body* defended by a bony covering coated by a horny, scaly, or coriaceous integument.
*Mouth* without distinct or proper teeth*? the upper mandible closing over the lower.

IN no branch of Natural History have more errors prevailed than in the attempt to discriminate with precision the several species of Tortoises; the general similarity being very great, and the individuals occasionally varying much in size, colours,

* What are called teeth in the generality of Tortoises are no other than the serratures of the mandibles.

&c. according to the different periods of their growth.

The specific characters given by Linnæus, in the Systema Naturæ, are proved, from later observations, to be entirely insufficient for the purpose of accurate distinction; and the same must be said of those in the Gmelinian edition of that work. The descriptions of the Count de Cepede, in his History of Oviparous Quadrupeds, have by no means tended to dispel the general obscurity, but have in some instances rather increased it; and throughout almost all authors will be found to prevail a confusion of synonyms and references. Mr. Schneider, Mr. Schoepff, and some others, have lately endeavoured to elucidate this difficult genus, and have contributed to a somewhat clearer knowledge of the species and varieties. One observation of Mr. Schoepffs is of peculiar importance, and may save zoological students a considerable degree of unnecessary trouble, viz. that the apparent number of claws or projecting extremities on the feet of the marine tortoises or turtles, appears to be no certain criterion of the species; but, on the contrary, is found to vary in such a manner as to contradict the Linnæan specific characters. Thus, on collating a number of specimens of the T. Mydas, or common green Turtle, some will be found with only a single claw on each of the feet; others, with two, or even three; and others with two on the fore feet, and one on the hind. It also appears, from the observations of Cetti and others, that a similar




COMMON TORTOISE.

1801 Jan.y 1 London Published by G Kearsley Fleet Street.

variation occasionally takes place in some of the land tortoises, and particularly in the T. Græca, or common tortoise, the fore feet of which in some individuals have four, and in others five claws. The animals are, therefore, best distinguished by the shape, pattern, and colours of the shell, the form of the head, &c.

---

## *Land and fresh-water Tortoises.*

### COMMON TORTOISE.

Testudo Græca. *T. testa hemisphærica nigro flavoque varia, scutellis disci subconvexis, margine laterali obtuso, postice gibbo.*

Tortoise with hemispheric black and yellow shell, gibbose behind; the pieces composing the disk convex, and the sides obtuse.

Testudo Græca. *T. testa hemisphærica, subtellis disci subconvexis, flavis, nigro cinctis, margine laterali obtuso postice gibbo. Schoepf. Hist. Test. p.* 38. *t.* 8, 9.

Testudo Græca. *T. pedibus subdigitatis, testa postice gibba, margine laterali obtusissimo, scutellis planiusculis. Lin. Syst. Nat. p.* 352.

Testudo terrestris vulgaris. *Raj. Quadr.* 243.

The common Land Tortoise.

This animal is generally considered as the most familiarly known of all the European species, and is emphatically called by the title of the Common Land Tortoise. It might, therefore, as Mr. Schoepff has well observed, be expected, that its accurate description should long ago have been

given, and its specific characters so exactly ascertained as to leave no doubt of the animal intended. This, however, is so far from being the case, that it may be questioned whether any of the genus has been less distinctly described.

The figure given by the Count de Cepede, in his History of Oviparous Quadrupeds, as well as its description, at p. 144 of that work, relates to a very different species; the author having confounded widely distinct animals. This is the more unfortunate, as the Count particularly observes, that it is known to all the world, and that there is scarcely any person who has not seen it: that it has been in all times the type of tardity; and that it has furnished in every age a field of speculation for philosophers, images for poets, and proverbs for the people. All this is indeed true, but not of the animal he describes and figures.

The common or Greek Tortoise is supposed to be a native of almost all the countries bordering on the Mediterranean Sea; and is thought to be more frequent in Greece than in other regions. It is found in the scattered European islands of the Archipelago, and in Corsica and Sardinia. It occurs likewise in many parts of Africa. In Greece, according to Forskal, "it forms an article of food; and the inhabitants often swallow the blood recent, and eat the eggs boiled, which are about the size of those of a pigeon, four or five in number, and of a white colour. In September the animal hides itself under ground, and

again emerges in February*; laying its eggs in June, in a small hole, which it scratches in some sunny spot, out of which after the first rains of September, the young are hatched, which are about the size of a walnut. The males of this species are said to fight often, butting at each other with such force as to be heard at a considerable distance."

The general length of the shell of this species is from six to eight inches, which latter measure it rarely exceeds: the weight of the full-grown animal is about forty-eight ounces. The shell is of an oval form, extremely convex on the upper part, and composed, as in most others, of thirteen middle pieces, and about twenty-five marginal ones: the middle pieces, or those constituting the disk of the shield, are mostly of an oblong square form, and of a blackish or dark brown colour, varied by a broad yellow or citron band running along one side of each, and continued about half way along the upper part: there is also an oblong patch of a similar colour, running down the lower part or side of each; and on the top or centre of each piece is an obscurely square or oblong space, rather more depressed than the rest, and marked, as in many other tortoise-shells, with roughish spots or granules: several furrows, more or less distinct

* When kept in gardens in Italy and Germany, it is observed to latibulize in October, and to reappear in April. In England it retires about the end of October, and reappears about the middle of April; but these periods seem to differ in all countries according to the temperature of the weather, &c.

in different individuals, appear traced round the sides of each piece, becoming gradually less distinct as they approach the upper part or space just mentioned. The colours of the shell are more or less bright in the different specimens, and are subject, as well as even the shape of the pieces themselves, to some occasional variations; and when very old, the shell becomes much smoother than in the younger animals, the sulci or furrows, as well as the areolæ or spaces on the top of each scutellum or piece, being almost obliterated. The under or belly part of the shell is of a citron or pale yellow colour, with a broad blackish or deep-brown zone down each side, leaving the middle part plain. The head is rather small than large; the eye small and black; the mouth not extending beyond the eyes; the upper part of the head covered with somewhat irregular, tough scales, and the neck with smaller granulations, so as to be flexible at the pleasure of the animal. The legs are short, and the feet moderately broad, covered with strong ovate scales, and commonly furnished with four moderately stout claws on each; but this is a circumstance which cannot be allowed to constitute a part of the specific character, since in different individuals, either from age, or other circumstances, these parts are found to vary in number, there being sometimes five claws instead of four on the fore feet. The tail is about the same length with the legs, or rather shorter, and is covered with small scales, and terminates in a naked horny pointed tip or process.

This animal lives to a most extraordinary age;

several well attested examples being adduced of its having considerably exceeded the period of a century. One of the most remarkable instances is that of a tortoise introduced into the archiepiscopal garden at Lambeth, in the time of Archbishop Laud, and as near as can be collected from its history, about the year 1633, which continued to live there till the year 1753, when it was supposed to have perished rather from accidental neglect on the part of the gardener, than from the mere effect of age. This Tortoise has had the honour of being commemorated by Derham*, and many other writers, and its shell is preserved in the library of the palace at Lambeth †.

The general manners of the Tortoise, in a state of domestication in this country, are very agreeably detailed by Mr. White, in his History of Selbourn. "A Land Tortoise," says Mr. White, "which has been kept thirty years in a little walled court, retires under ground about the middle of November, and comes forth again about

* In a copy of the work entitled *Memoirs for the Natural History of animals*, from the French Academy, and which was once the property of Derham, the following MS. note occurs:

"I imagine Land-Tortoises, when arrived at a certain pitch, cease growing. For that I saw, Aug. 11, 1712, in my Lord Archbishop of Canterbury's Garden, which hath been there ever since Archbishop Juxon's time, and is accounted to be above 60 years old, was of the same size I have seen others of, of larger size, and much younger."

† This memorable Tortoise appears to have exceeded the usual dimensions of its species; the shell measuring ten inches in length, and six and half in breadth.

the middle of April. When it first appears in the spring, it discovers very little inclination for food, but in the height of summer grows voracious; and then, as the summer declines, its appetite declines; so that for the last weeks in autumn it hardly eats at all. Milky plants, such as lettuces, dandelions, sowthistles, &c. are its principal food. On the first of November, 1771, I remarked that the Tortoise began to dig the ground, in order to form its hybernaculum, which it had fixed on just beside a great tuft of Hepaticas. It scrapes out the ground with its fore feet, and throws it up over its back with its hind, but the motion of its legs is ridiculously slow, little exceeding the hour hand of a clock. Nothing can be more assiduous than this creature, night and day, in scooping the earth, and forcing its great body into the cavity; but as the noons of that season proved unusually warm and sunny, it was continually interrupted, and called forth by the heat in the middle of the day, and though I continued there till the thirteenth of November, yet the work remained unfinished. Harsher weather, and frosty mornings, would have quickened its operations. No part of its behaviour ever struck me more than the extrême timidity it always expresses with regard to rain; for though it has a shell that would secure it against the wheel of a loaded cart, yet does it discover as much solicitude about rain as a lady dressed in all her best attire, shuffling away on the first sprinklings, and running its head up in a corner. If attended to, it becomes

an excellent weather-glass, for as sure as it walks elate, and, as it were on tip-toe, feeding with great earnestness, in a morning, so sure will it rain before night. It is totally a diurnal animal, and never pretends to stir after it becomes dark."

"The Tortoise," adds Mr. W. "like other reptiles, has an arbitrary stomach, as well as lungs, and can refrain from eating, as well as breathing, for a great part of the year. I was much taken with its sagacity, in discerning those that do it kind offices; for as soon as the good old lady comes in sight who has waited on it for more than thirty years, it hobbles towards its benefactress with awkward alacrity; but remains inattentive to strangers. Thus, not only "*the Ox knoweth his owner, and the Ass his master's crib,*" but the most abject and torpid of beings distinguishes the hand that feeds it, and is touched with the feelings of gratitude. This creature not only goes under the earth from the middle of November to the middle of April, but sleeps great part of the summer; for it goes to bed in the longest days at four in the afternoon, and often does not stir in the morning till late. Besides, it retires to rest for every shower, and does not move at all in wet days. When one reflects on the state of this strange being, it is a matter of wonder that Providence should bestow such a seeming waste of longevity on a reptile that appears to relish it so little as to squander away more than two thirds of its existence in a joyless stupor, and be lost to all sensation for months together in the profoundest of all slumbers! Though he loves warm weather, he avoids the hot sun; be-

cause his thick shell, when once heated, would, as the poet says of solid armour, '*scald with safety.*' He therefore spends the more sultry hours under the umbrella of a large cabbage-leaf, or amidst the waving forests of an asparagus bed. But as he avoids heat in the summer, so in the decline of the year, he improves the faint autumnal beams, by getting within the reflection of a fruit-tree wall; and though he has never read that planes inclining to the horizon receive a greater share of warmth, he inclines his shell by tilting it against the wall, to collect and admit every feeble ray."

The Tortoise seems more tenacious of the vital principle than any other of the Amphibia. Redi informs us, that in making some experiments on vital motion, he, in the beginning of November, took a land tortoise, and made a large opening in its skull, and drew out all the brain, washing the cavity, so as to leave not the smallest part remaining, and then, leaving the hole open, set the animal at liberty. Notwithstanding this treatment, the Tortoise marched away, without seeming to have received the smallest injury: it however closed its eyes, and never opened them afterwards. In a short space the hole of the skull was seen to close, and in about three days there was a complete skin covering the wound; and in this manner the animal lived, without the brain, for six months, walking about, and moving its limbs as before. Redi also cut off the head of a Tortoise, which lived twenty-three days afterwards; and the head itself continued to snap the jaws for more than a quarter of an hour after its separation from the

body. He repeated the experiment of taking out the brain upon several other Tortoises, both of land and fresh water; all of which lived for a considerable space without the brain. He observed also, that having cut off the heads of some, and opening the bodies twelve days afterwards, the motion of the heart was still perceptible; so slowly is the vital principle discharged from these inactive animals.

The species of Testudo most liable to be confounded with the Græca seem to be the *T. pusilla* of Linnæus, the *tabulata* of Schoepf, the *sulcata* of Millar, and the *marginata* of Schoepf. Linnæus himself quotes no figure for his T. Græca, which has greatly tended to increase the general uncertainty.

---

## MARGINATED TORTOISE.

Testudo Marginata. *T. testa oblonga fusca gibba flavo variata, postice explanato-depressa.*

Tortoise with blackish-brown, oblong gibbose shell variegated with yellow, widened and depressed on the hind part.

Testudo Graja. *T. testa postice explanato-depressa, lateribus obtusa, scutellis subgibbis, glabris; marginali anteriori lineari. Hermann.*

Testudo marginata. *T. testa oblonga gibba; lateribus retusa, margine postico explanato-depressa, scutellis 24. Schoepf. Test. p. 52. t. 11. and 12. f. 1.*

This, according to Mr. Schoepf, is the species erroneously figured and described in the Count de Cepede's work as the Testudo Græca, and consi-

dered as the most common European species. The Count de Cepede's description is as follows: This Tortoise, which is described from the life, is almost fourteen inches long, and ten broad, when measured according to the curvature of the shell: the head is an inch and ten lines long, an inch and two lines broad, and one inch deep; it is flat and triangular above: the eyes furnished with a nictitating membrane; the lower eyelid alone being moveable: the mandibles strong, crenulated, and beset internally with asperities, which are sometimes mistaken for teeth: the apertures of the ears are covered by the common skin: the tail is very short, being only two inches long: the fore legs three inches and six lines long; the hind feet two inches and six lines: the skin is grainy, and covered with unequal, hard scales, of a brown colour, and covering the head, legs, and tail; some of these scales on the ends of the feet are large and hard, and of a pointed form, so that they might be confounded, at first sight, with the claws: the feet are thick, and so covered, as it were, by the investing membrane, that the toes can only be distinguished by the claws which terminate them. The Count adds, that the disk of the shell consists of thirteen pieces, striated on their margins, and the border of twenty-four pieces; all of which, and especially the hinder ones, are much larger in proportion than in other tortoises, and from their position cause the circumference of the upper shell to appear denticulated: it is extremely convex, being more than four inches

deep; in consequence of which, the animal, when placed on its back, can regain its former situation. The Count has not particularized its native country, but considers it as a general inhabitant of Greece, Africa, India, the islands of Amboina, Ceylon, and Japan; and even of America; thus confounding, according to Mr. Schoepf, several different species from all quarters of the globe under one general name*.

The general colour of this animal is a dark or blackish bay; the middle or convex part of the pieces composing the disk, being more or less dashed or varied, in an irregular manner, with yellow: the marginal pieces are also variegated with the same colour, which predominates chiefly on the hindermost or widest divisions, which are pretty distinctly striated or furrowed, and from their peculiar width or dilatation† form the chief part of the specific character. The under shell is of a pale yellow colour, each division being marked on its upper commissure by a transverse blackish band, running into a pair of pointed or subtriangular processes, extending nearly to the next or inferior division. The outline of the shell, if viewed from above, will be found to be much longer in proportion than that of the Testudo

* "Generos. de la Cepede, sub T. Græcæ nomine, plures et diversissimas terrestres testudines, ex omnibus fere mundi plagis, in unam confudit speciem."—*Schoepf. p.* 47.

† The shell of the T. Græca is also somewhat dilated on each side at the hind part, especially in the older specimens; but not in so great a degree as in the present species.

Græca, accompanied by a slight contraction or sinking in on each side.

This species appears evidently to be the same with that figured in the work of Johnston, under the title of *Schildt Krötte*, tab. 80, and the figure is by no means a very bad one, though the markings of the shell are somewhat too strongly expressed.

The true native country of the animal seems not very distinctly known. Mr. Schoepf is inclined to think it an American species.

I cannot but add, that the Count de Cepede seems to be not the only author who has confounded it with the T. Græca; and it is probable that it has frequently been mistaken for that animal.

## GEOMETRICAL TORTOISE.

Testudo Geometrica. *T. testa ovata nigra, scutellis elevatis, flavo stellatim radiatis.*

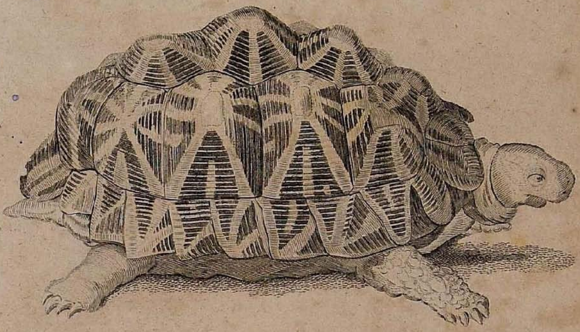
Tortoise with ovate black shell and elevated scutella radiated with yellow.

Testudo geometrica. *T. pedibus posticis palmatis, testæ scutellis elevatis truncatis. Lin. Syst. Nat. p.* 353.

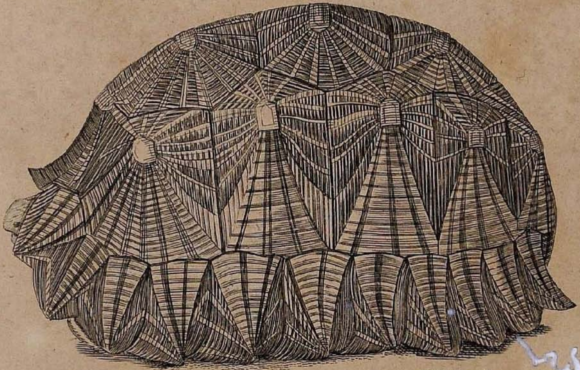
*T. scutellis testæ ovatæ omnibus elevatis superne planis, striis flavis velut e centro stellatim concurrentibus. Lin. Syst. Nat. Gmel. p.* 1044.

Testudo testellata minor. *Raj. Quadr.* 359.

From its strong and well-contrasted colours and symmetrical regularity of pattern, the present species is more readily distinguishable at first



GEOMETRICAL TORTOISE.



*Coates sculp.*

RADIATED TORTOISE.

*1801 Jan^y 1 London Published by G Kearsley Fleet Street.*

view, than most others of this perplexing tribe. The pieces of which the disk of the shell consists are very prominent, striated, or furrowed pretty distinctly with numerous lines on their sides, and terminated above by a yellowish, flat, square, or rather hexagonal roughened space or centre, from which proceed, in a radiated direction, several well-defined yellow streaks towards the edge; thus constituting a beautiful kind of geometrical appearance on the black ground-colour on which they are disposed; the marginal pieces, which are commonly twenty-four, sometimes twenty-six, in number, are also streaked with yellow, but in a somewhat different style, as may be seen by inspecting the annexed engraving. In the brightness of its colours, like all other Tortoises, it occasionally varies; but the beautiful regularity of its pattern is scarcely ever obliterated, even in the oldest specimens. In the number of pieces composing the disk it is sometimes known to vary; having occasionally fourteen instead of thirteen, as is the case in a specimen preserved in the British Museum, and represented on pl. 306 of the Naturalist's Miscellany.

The native country of this beautiful Tortoise is perhaps not truly ascertained; though the shell is more frequently seen in Europe than that of almost any other kind. It is said, however, to inhabit Asia and Africa, and even to be found in America. According to Mr. Thunberg it is particularly common in shrubby places about the Cape of Good Hope. It is said to lay about twelve or

fifteen eggs at a time. The Count de Cepede supposes this species to be the Terrapin of Dampier, which that navigator represents as very beautifully variegated, and as delighting in moist and marshy places; adding, that its flesh is esteemed as a food, and that it is found in plenty on the coasts of the Pine islands, between the continent of America and Cuba: they are found in the forests, where they are easily taken: the hunters mark them on the shield, and let them wander about the woods; being sure to find them again at no great distance, every one easily recognizing his own property, and afterwards carrying them to Cuba.

## RADIATED TORTOISE.

Testudo Radiata. *T. testa ovata nigra, scutellis planiusculis flavo stellatim radiatis.*

Tortoise with ovate black shell and flattish scutella radiated with yellow.

Testudo tessellata major. Great chequered Tortoise-shell, *Grew. mus. reg. soc. p.* 36.

From a general resemblance in the pattern of the shell, and a similarity in colours, it appears that this animal has been considered either as the same species, or at most as a variety of the T. geometrica. It is impossible, however, to view with any attention the two shells without allowing them to be perfectly distinct. That of the species at present under consideration often measures a

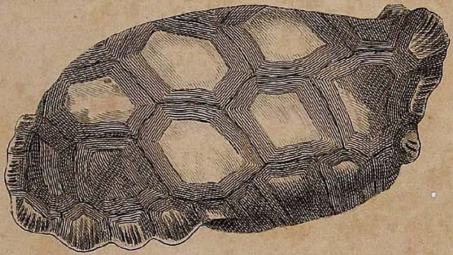
foot or more in length, whereas the former seldom arrives at that size: it is also nearly smooth or even in its outline, whereas that of the T. geometrica is remarkably tuberculated; the pieces of which it consists rising very much towards their centres: the pattern in the present shell is also more elaborately disposed, and the streaks or radiations more numerous and delicate in proportion; all which distinctions will appear at once from an inspection of the annexed figures, and will be more impressed on the mind of the inquirer than by any possible verbal description. The native country of this species is said by Grew, who has well described it in his *Musæum Regalis Societatis*, to be Madagascar; but it should seem to be also a native of Jamaica; since the *Hicatee* Tortoise, mentioned in Brown's History of that island, appears to agree pretty well with its characters and size, and will by no means accord with those of the T. geometrica, to which it is generally applied by authors. So accurately has Grew detailed the figure and pattern of the shell, that it would be injurious to omit his description:

"It was sent from Madagascar. I find the animal no where described or figured. It is above half oval; being of all that I ever saw the most concave; a foot long, eight inches over, and almost six inches high. The convex is curiously wrought with black and whitish pieces, alternately wedged in, one against another, and notched, as it were, with transverse incisions. Those near the margin and on the sides are composed into

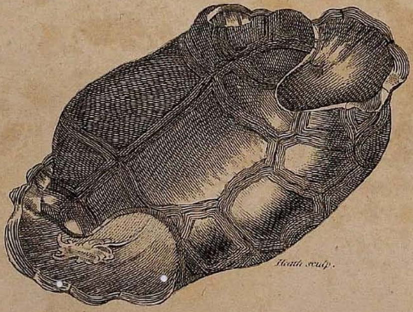
several pyramidal areas or great triangles, whose bases are about two inches broad. On the back into sexangular ones, each of them convex. On the sides and quite behind the shell is carried somewhat inward. Before and hinderly the edges are toothed, and bended outward and upward. The inward edges are covered with shelly plates above an inch and half broad. The concave is composed of six and forty bones. Along the middle of the back are twelve, all, except the foremost and the four last, almost square. Next to these are eight on each side, like so many contiguous ribs; together with two lesser square bones before: next to these, eight more, as it were, under-ribs, on each side. To the twelve middlemost bones the ribs are joined by an alternate commissure, so as one of them answers to the halves of two ribs, and vice versa. To these the under-ribs, in a wonderful manner, viz. by a branched suture or indenture. For the great teeth of the under-ribs being first inserted into those of the upper-ribs, the indenture is afterwards repeated by lesser teeth, out of the sides of the great ones. Besides the most elegant ordering of the work in the convex, there are three things chiefly observable, which serve for the greater strength of the shell. That is to say, the convexity of the several areas on the back, the branched sutures, and the alternate commissures of the bones; answerable to the rule of Nature in a human skull; and of Art, in laying of stones in buildings, and in covering of broader vaults,

3.

INDIAN TORTOISE.



INDIAN TORTOISE, *var.*



*Heath sculp.*

*1801 Jan.y 1 London Publish'd by C. Kearsley Fleet Street.*

not with one arch, but several lesser ones, for the greater strength."

It should be farther observed, that the colour of this shell varies in different specimens, the radiations being sometimes yellow, and sometimes very pale or whitish, as in Grew's description.

The under part of the shell was wanting in the specimen described by Grew; but in the Leverian Museum are specimens of this part also, which differs widely in the distribution of its markings from that of the preceding species; the ground-colour being blackish-brown, marked by large well-defined yellow divisions or transverse spaces, of which that in the middle constitutes a complete rhomb or horizontal lozenge, bounded above and below by two much narrower ones, while the pieces composing each extremity are also of the same colour, and of a subtriangular form. In some specimens a few additional yellow rays are interspersed.

## INDIAN TORTOISE.

Testudo Indica. *T. testa supra collum reflexa, scutellis tribus primoribus tuberosis. Lin. Syst. Nat. Gmel. p.* 145. *Schneid. Schildkr. p.* 355.

Tortoise with brown shell, reflected above the neck, and marked with a tubercle on the three upper scutella.

Great Indian Tortoise. *Mem. Nat. Hist. anim. Fr. Acad. p.* 252. *pl. ibid.*

This very large terrestrial species, which is omitted by Linnæus in the twelfth edition of the

Systema Naturæ, was first described by Perrault in the History of Animals published by the Royal Academy of France. The specimen was taken on the coast of Coromandel, and measured four feet and a half from the tip of the nose to the tail; and its height or convexity was fourteen inches: the shell itself was three feet long and two broad, and, like every other part of the animal, was of a dull brown colour: the shield consisted of large and dissimilar pieces, and the edge on the fore-part was rather reflected, for the easier motion of the animal's head: the three anterior portions of the shield had each a round knob or tubercle on the middle, which seems the most remarkable character of the species; each tubercle was about half an inch wide, and from three to four lines high: the head, feet, and neck, were covered with a wrinkled and granulated skin; the head was seven inches long; the mandibles serrated, and furnished with an additional internal row of denticulations: the fore legs were nine inches long: the fore feet undivided, thick, and armed with five blunt claws: the hind legs were eleven inches long; the feet tetradactylous and armed with four claws: the tail six inches thick at the base, fourteen inches long, and terminated by a horny curved process. The figure given in the Memoirs of the Academy seems rather negligently executed. Mr. Cepede appears to confound this very large species with the T. Græca.

VAR.?

Mr. Vosmaer has described and figured the shell of a large Land Tortoise from the Cape of Good Hope, which seems so much allied to the preceding, that it can hardly be considered as any other than a variety. Its length was about two feet eight inches: its width one foot six inches: its height one foot: the disk had thirteen, and the margin twenty-five pieces. The only difference worth remarking seems to consist in the absence of the three tubercles in front, which perhaps may constitute a sexual distinction.

Allied to the above is also a very large species brought from the southern islands, and now in the British Museum: the shell is about three feet and a half long at least; of an ovate-oblong form, widening at the bottom, and contracting considerably on each side the neck: its colour is a dull uniform brown, and its surface smooth: all the divisions are even; yet the whole surface of the shell has, as it were, regular elevations and depressions on different parts.

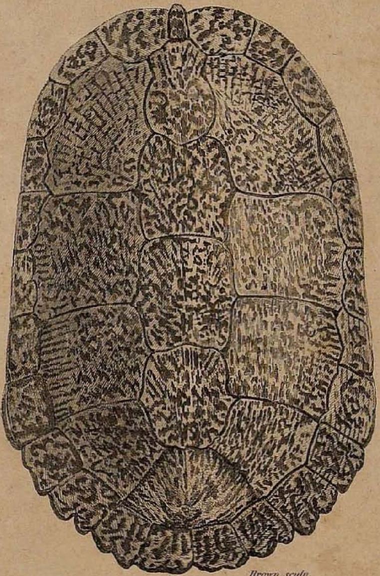
## WRINKLED TORTOISE.

Testudo Rugosa. *T. rugosa nigra, flavo venuloso-variata, scutellis mediis subpanduræformibus.*

Tortoise with black wrinkled shell, mottled and variegated with yellow; with the middle dorsal pieces subpanduriform.

A SHELL of this remarkable species, which does not appear to have been described in any work on natural history, is preserved in the Leverian Museum. It is of a long oval form, somewhat dilated or widened at the hind part; and is of very considerable depth or convexity. Its colour is black, or dark brown, thickly mottled with small and somewhat confluent spots and variegations of pale yellow, which are rather larger on the sides than on the middle of the shell. The three middle divisions of the dorsal row of scutella are, in the Linnæan phrase, somewhat panduriform or fiddle-shaped; while the upper piece is so formed as to resemble the outline of a pitcher, and the lowest is irregularly hexagonal: the side pieces are four in number, and nearly of the general or usual shape: the marginal pieces are twenty-five in number; the upper one very small, and the four lowest on each side pretty deeply emarginated or sub-bifid, so as to give a somewhat serrated outline to that part of the shell. A pretty distinctly marked, but by no means sharp, carina or ridge runs down the dorsal row. The whole upper surface of the shell is strongly wrinkled; every scutellum being marked by numerous, deeply impressed, somewhat

WRINKLED TORTOISE.



Brown sculp.

1801 Jan. 1 London Publish'd by G. Kearsley Fleet Street.

longitudinal sulci or furrows, of various degrees of obliquity; the whole forming an appearance less easy to express in words than by a figure. The under shell is smooth, and of a pale or yellowish white colour, thickly and beautifully mottled with black. The length of this curious shell is nine inches and a half: its width, in the middle, five inches; in the widest or hind part, six inches and a half, and its height, or convexity, three inches, if measured from the bottom of the under shell, and nearly two inches, if from the prominent margin or edge of the upper shell.

The annexed engraving is an accurate representation of the above-described shell of nearly half the natural size. Its native country seems to be unknown.

### VAR.

In the Leverian Museum is a variety, perhaps a sexual difference of the above. In this the shell, instead of being speckled, is marked somewhat obscurely with two or three yellowish horizontal streaks on each scutellum; while the under shell is of a yellowish white, with a row of moderately large, round, blackish spots along the whole circumference, one spot being seated at each commissure of the marginal pieces. A pair of similar spots occur also at the tip or upper part of the sternum, and a pair on each side the concavity at the opening for the hind legs.

## SPECKLED TORTOISE.

Testudo Europæa. *T. testa ovali planiuscula subcarinata fusco-atra, punctis striisque albo-flavescentibus radiatis. Schneid. Schildkr. p.* 323.

Tortoise with oval, flattish, smooth, dark-brown shell, marked with very numerous yellowish specks and streaks.

Testudo orbicularis. *T. testa orbiculari planiuscula lævi. Lin. Syst. Nat. Gmel.* 1039. *exclusis synon. Gronovianis et γ.*

Testudo Meleagris. Speckled Tortoise. *Naturalist's Miscellany, vol.* 4. *pl.* 144.

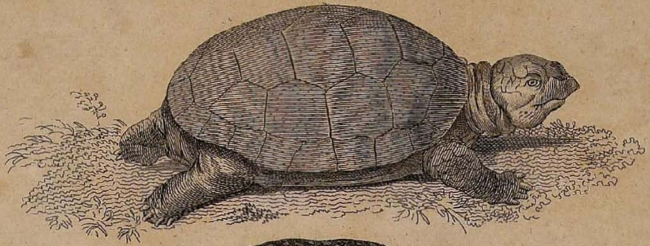
*T. aquarum dulcium et lutaria. Raj. Quadr.* 254.

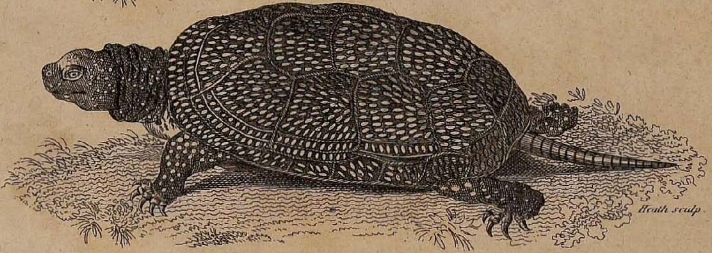
La Jaune. *Cepede ovip.* 1. *p.* 135. *pl.* 6.

The speckled Tortoise is of rather small size; the shell measuring about four or five inches in length: it is of an olive-brown or blackish colour, smooth, flattish, or but slightly convex, and beautifully marked on the upper surface with very numerous, small, oblong yellow specks, or very short streaks, which are disposed in a kind of radii on each division of the shell: the skin of the neck and breast of the animal is also spotted nearly in the same manner. The disk of the shell is composed of thirteen, and the margin of twenty-five pieces: the under shell is of a whitish yellow, tinged towards the commissures or joints with brown: the head is ovate, somewhat convex above, flattish on each side and beneath; the skin of the neck lax and wrinkly: the legs short and scaly: all the feet are webbed, and the fore feet have five toes; the hind only four: the claws on all the feet are sharp-pointed, and somewhat

LA RONDE.

*Cepede.*





*Heath sculp.*

SPECKLED TORTOISE.

*1801 Jan.y 1 London Publish'd by G. Kearsley Fleet Street.*

crooked: the tail is almost half the length of the body, and is thin, attenuated, compressed, and scaly; it is also spotted in the same manner as the body.

This elegant species is a native of many parts of Europe, being found in Italy, Sardinia, France, Hungary, Prussia, &c. inhabiting lakes and muddy waters, and feeding on aquatic plants, insects, snails, and small fish. Its flesh is said to be esteemed as a food, and is, in some places, sold in the markets: the animal is also occasionally kept in appropriated ponds, and fed or fattened with lettuce-leaves, bread, &c. &c. It may be also conveniently kept in a cellar, and fed with oats scattered on the floor, which it readily eats when they begin to germinate. It deposits its eggs in sandy and sunny places in the beginning of spring; and it is pretended that they are not hatched till the succeeding spring. It is an animal of extremely slow growth, and seems somewhat to vary in colour, according to the climates in which it is found; the ground-colour being either greenish, blackish, or of different shades of brown or chesnut.

It seems doubtful whether the species called *T. lutaria* by Linnæus was intended for this animal or not; and the same doubt remains with respect to the *T. orbicularis* of that author; since his characters of both will be found in some points to agree, and in others to disagree with the present animal.

### VAR.

Whether the species described by Cepede, under the title *La Ronde*, be the same with the above, is perhaps not easily determined. Its manners and habitations seem to agree: that figured by Cepede seems to have been young, being represented in its natural size, and is, for the satisfaction of the reader, engraved in the present publication.

## MUD TORTOISE.

Testudo Lutaria. *T. fusca, cauda corpore dimidio breviore, testa planiuscula.*

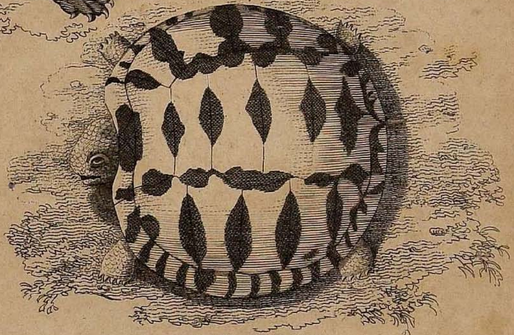
Brown Tortoise, with flattish shell, and tail half the length of the body.

Testudo lutaria. *T. pedibus subpalmatis, cauda corpore dimidio breviore, testa planiuscula, postice tribus scutellis carinata? Lin. Syst. Nat. p.* 352.

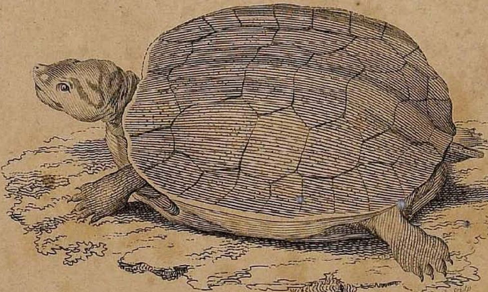
La Bourbeuse. *Cepede ovip.* 1. *p.* 218. *pl.* 4.

This, which is supposed by the Count de Cepede to be the Testudo lutaria of Linnæus, is said to be extremely common in many parts of Europe, as well as Asia, being found in India, Japan, &c. It is, says Cepede, in general, not more than seven or eight inches long from the tip of the nose to that of the tail, and about three or four inches in breadth: the disk consists of thirteen pieces, which are striated and slightly punctated

MUD TORTOISE.



ELEGANT TORTOISE.




LA BOURBEUSE,

Cepede.

1801 Dec.r 1 London Published by G.Kearsley, Fleet Street.

in the centre, and along the middle range runs a longitudinal carina: the margin consists of twenty-three pieces, bordered with slight striæ: the colour of the shell is blackish, more or less deep in different specimens, and the general colour of the skin itself is similar: the feet are webbed, and there are five toes before, and four behind; the exterior toe of each foot is unarmed: the tail is nearly half the length of the upper shell, and instead of being folded under the shell, as in most land tortoises, it is stretched out in walking; and on this account the animal has been called *Mus aquatilis* by some of the older naturalists, and when seen walking, one would imagine that a lizard had concealed its body under the shell of a tortoise. Like other tortoises, it sometimes utters a kind of broken or interrupted hiss. This animal is, according to Cepede, no where more common than in France, and is particularly plentiful in Languedoc, and in many parts of Provence; and in a lake of about half a league wide, situated in the plain of Durance, were found such vast quantities, that the neighbouring peasantry were in a manner supported by them for more than three months together.

Though this species be aquatic, it always lays its eggs on land; digging for that purpose a hollow in the ground, and covering the eggs with the mould: the shell is less soft than those of the sea-tortoises or turtles, and the colour less uniform. When the young are first hatched they measure about six lines in diameter. This animal

walks much quicker than the land tortoise, especially when on even ground. It grows for a long time, and has been known to live more than twenty-four years. The taste which it has for small snails, and such kind of wingless insects as frequent the neighbourhood of the waters it inhabits, make it useful in a garden, which it delivers from noxious animals, without doing any mischief itself. Like other tortoises, it may be rendered domestic, and may be kept in a bason or receptacle of water, so contrived on the edges as to give a ready egress to it when it wishes to wander about for prey. Like the rest of the Amphibia, it can also support a long abstinence, and will live for a considerable time, when deprived of parts seemingly the most essential to life, and even of the head itself. The Count de Cepede, adds, that though useful in gardens, it is found to be a very troublesome inmate in fish-ponds; attacking and destroying the fish; biting them in such a manner that they become enfeebled by loss of blood, and then dragging them to the bottom and devouring them, leaving only the bones and some of the cartilaginous parts of the head, and sometimes the air-bladder also, which, floating on the surface, give notice of the enemies with which the pond is infested.

From the above account it should seem that this species is nearly allied to the T. Europæa, or speckled tortoise, though differing in colour, &c.

## CARINATED TORTOISE.

Testudo Carinata? *T. pedibus digitatis, testa gibbosa, scutellis dorsalibus quatuor anterioribus carinatis, sterno integro. Lin. Syst. Nat. p.* 353.

Tortoise with digitated feet, and gibbose shell, with the four first dorsal scutella carinated, and entire sternum.

The Testudo carinata of Linnæus seems a species very little known. In the Leverian Museum is a shell which answers to the Linnæan description, and having a very distinctly marked dorsal carina, may be presumed to be the species intended: I must observe, however, that the epithet carinata is by no means a happy one, since there exist other species in which that part is at least as strongly marked as in the present. These, however, were probably unknown to Linnæus at the time when he described his Testudo carinata. This shell is one of the smaller kinds, measuring only three inches in length. Its form is broad, or inclining somewhat to orbicular; its convexity moderate, and its colour brown, each scutellum being marked by a pale zone of obscurely triangular and somewhat confluent spots surrounding the areola or central part, which is rather large than small, and roughened by very minute protuberances or points. The edges of each scutellum are surrounded by three or four pretty distinctly marked furrows. The form of the scutella is rather broad, and of the usual angular outline. Down the four first dorsal ones runs

a very strongly marked elevated carina, projecting almost into a tubercle on the back of each: this carina is of a yellow or pale colour, resembling that of the zones before mentioned. The marginal pieces are twenty-five in number, including the uppermost, which is extremely small.

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## CLOSE TORTOISE.

Testudo Clausa. *T. testa nigricante, maculis difformibus subconfertis flavis, carina dorsali obtusa, sterno bivalvi loricam occludente.*

Tortoise with blackish shell, irregularly spotted with yellow, with obtuse dorsal carina, and bivalve under-shell completely closing the upper.

Testudo clausa. *T. testa ovali gibba, dorsi scutellis carinatis, sterno bivalvi, loricam occludente. Schoepf. Hist. Testud. p.* 32. *t.* 7.

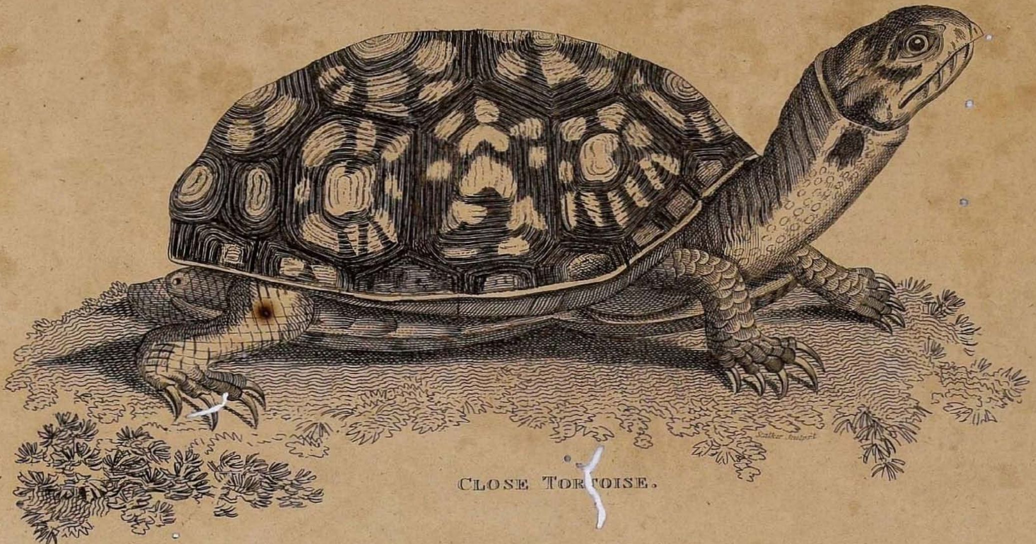
Testudo Carolina. *T. pedibus digitatis, testa gibba, cauda nulla. Lin. Syst. Nat. p.* 352. *Lin. Syst. Nat. Gmel. p.* 1041.

Testudo clausa. *T. disci scutellis carinatis, sterno vix repando, valvularum ope ad scutum apprimendo. Lin. Syst. Nat. Gmel. p.* 1042.

Dosen-Schildkroete. *Bloch. Schrift. Berl. Nat. Fr.* 7. *p.* 131. *t.* 1.

Land Tortoise from Carolina. *Edw. pl.* 205.

The Close Tortoise obtains its name from the unusual manner in which the under part of the shell is applied to the upper; being continued in such a manner round the margin, that when the animal withdraws its head and legs, it is enabled accurately to close all parts of the shell entirely



CLOSE TORTOISE.

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together, so as to be in a complete state of security; and so strong is the defence of this little animal, that it is not only uninjured by having a weight of five or six hundred pounds laid upon it, but can walk in its usual manner beneath the load. Its length rarely exceeds four or five inches. It is a native of many parts of North America, being chiefly found in marshy situations; though it is occasionally seen also in the driest and hottest places. It is principally sought for on account of its eggs, which are reckoned a delicacy, and are about the size of pigeons' eggs. It feeds on various kinds of small animals, as beetles, mice, and even serpents, which it seizes by the middle, and draws into its shell, and thus crushes them to death: it also eats various vegetable substances. It is so well figured by Edwards, whose representation is copied in the present work, that there is no particular necessity for any other description of its shape and colours than what is given by Edwards himself.

"The head is covered with a hard or shelly covering, of a dark brown colour on the top: on the sides and throat it is yellow, with small black or dusky spots: its nostrils are near together, a little above the end of its beak: the eyes are of a yellowish colour: the neck is covered with a loose skin, of a dark purplish flesh-colour, which partly covers the head when it is not fully extended: the hinder legs and parts about the vent are covered with a skin of the same dull flesh-colour as the neck: the fore legs and feet are

covered with yellow hard scales: it hath five toes on each foot forwards, and four on each of the hinder feet, all armed with pretty strong claws of a dusky colour: the shell above is pretty rising and round, divided into separate scales, of the horny substance called *tortoise-shell*: each scale is engraven as it were with rings round its extremities, which lessen inwards to its centre: the shell above is of a dusky-brown colour, with yellowish spots of various forms: underneath it is flattish, and of a yellow colour, with black clouds and spots: it has only the rudiment of a tail, in which the vent is placed: the lower shell is divided across the middle of the belly, and joined to the upper shell on the sides by a tough though flexible skin; by which means it can, when it draws in its head and legs, close or shut up its shell as firmly as that of an oyster."

This tortoise has, since the time of Edwards, been described as a new species by different authors, under different names; and thus the catalogue of species has been unnecessarily increased. Like others, it is observed to vary a little in the intensity and disposition of its colours; the yellow markings in some being abrupt, or not at all shaded into the ground colour of the shell.

## SULCATED TORTOISE.

Testudo Sulcata. *T. testa ovata fusca, scutellis sulcatis latere flavescentibus.*

Tortoise with ovate brown shell, with furrowed scutella yellow on each side.

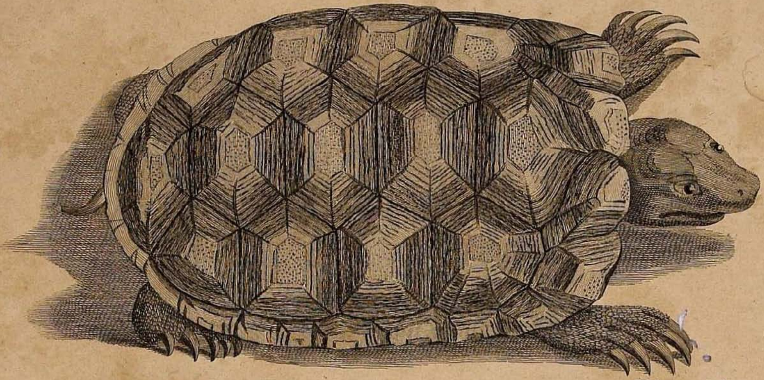
Testudo sulcata. *T. caudata, pedibus digitatis, testa gibba, scutellis lineatis sulco circumscriptis. Lin. Syst. Nat. Gmel.* p. 1045. *Mill. Tab. Nat. Hist.* 26.

THIS is one of the larger species of Land-Tortoise, appearing by Mr. Millar's figure to be about a foot or rather more in length, from the nose to the tip of the tail. The shell is very convex, and has the general habit of the *Græca* and *Geometrica* as to shape: the disk is divided into thirteen parts or pieces, of the usual subhexagonal and pentagonal form, each being transversely furrowed from the lower edge to the upper area or terminal surface with five or six strongly-impressed sulci; and across these, in an opposite direction, appear to run three impressed lines or radii: the marginal pieces are furrowed or radiated in a similar manner: the general colour of the shell is a dull yellow, each side of the shield-pieces being entirely of that colour, while the upper and lower part of each is brown: the marginal pieces are also obliquely separated into a yellow and brown division: the head is rather large; handsomely and distinctly covered with differently formed scales, those on the top and sides being largest and subhexagonal; those round the eyes small and rounded, and those on the upper part of the neck hexagonal, but

much larger than those round the eyes: the mandibles are serrated in a somewhat unequal manner along the upper edges, the serratures or denticulations being largest at the tip: the fore legs are strongly scaled on the upper surface with lengthened scales, each marked by several transverse furrows; the toes are scarce distinct, but the claws are strong, large, black, and five in number: the hind feet are covered with very small granulations or rounded scales, and have only four claws: the tail is very short, and covered with the same kind of granulated skin.

This species is said to be a native of the West Indies, and perhaps may be the *Hicatee* of Brown, slightly described in his History of Jamaica. The under shell is of a pale colour, and marked by many strongly impressed concentric lines, following the figure of each of the divisions.

Upon the whole, I cannot avoid entertaining a suspicion that this Tortoise may in reality be the same with the following species, or T. tabulata.



Blakemore sculp.

TABULAR TORTOISE.

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### TABULAR TORTOISE.

Testudo Tabulata. *T. testa oblonga gibba fusca, scutellis disci rectangulis sulcatis, areolis flavescentibus.*

Tortoise with oblong gibbose brown shell, with the scutella of the disk rectangular and furrowed; with yellowish centres.

Testudo tabulata. *T. testa oblonga gibba, scutellis disci rectangulis sulcatis, areolis subgibberis. Schoepf. Hist. Test. p.* 56. *t.* 12. *f.* 2. 13. *f.* 1. 2.

Testudo terrestris Brasiliensis. *Seb.* 1. *p.* 121. *t.* 80. *f.* 2.

THIS was first described and figured in Seba's Thesaurus, and is there said to be a native of Brasil, but it is believed to be rather an African species. It is distinguished by the greater uniformity, both as to shape and size, of the pieces which compose the disk, than in others of the genus; each piece being flattish or but slightly convex, and, in general, of an hexagonal figure, though some of the side pieces are rather pentagonal: the central part of each is large, and slightly granulated, and the sides pretty clearly and strongly sulcated or lineated with numerous furrows, and the whole has a kind of tabular or flattened appearance, as expressed in the specific name: the convexity, however, of the shell itself is very considerable, and the pieces of which it is composed rise towards the middle of each. The colour of this species is a yellowish chesnut, palest or yellowest on the centres of the several divisions: the head is serpentine; the mandibles serrated or denticulated: the eyes black and bright: the neck brown, wrinkled, scaly, and extensile to the length

of four inches: the legs thick and bowed, and spotted with red: the fore feet have five, and the hind four broad and strong claws: the tail is thick and conical, and about an inch in length: the number of pieces on the disk is thirteen, and of the margin twenty-three. It appears to vary somewhat in colour; perhaps from age, &c. Seba's specimen is described as of a purplish colour, with pale-red centres on the divisions. That described by Retzius was blackish, with pale or whitish centres; and Mr. Schoepf's is described as deep brown, with pale orange or fulvous centres. The general length of the shell is about five or six inches. When young, the furrows of the pieces are much fewer than in the advanced animal; and therefore it is not unreasonable to suppose, that their number in this, and many other species, bears some relation to the age of the animal, analogous to the concentric lamellæ in the wood of trees. Specimens of the shell of this Tortoise are preserved in the British and Leverian Museums. I have, under the article *T. Sulcata*, expressed a suspicion that these two animals may, in reality, belong to the same species: this, however, being not certain, I describe each as distinct: both are evidently terrestrial animals, as appears from the form of their feet.

Grant Sculp

SERRATED TORTOISE.

CONCENTRIC TORTOISE.

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## CONCENTRIC TORTOISE.

Testudo Concentrica. *T. testa ovata, subdepressa subcarinata flava, scutellis zonis fuscis concentricis.*

Tortoise with subdepressed, subcarinated, oval, yellow shell, with the scutella marked by concentric brown zones.

Testudo Terrapin. *T. testa supera depressa, scutellis dorsi anterioribus carinatis, margine laterali costato, postice crenato. Schoepf. Test. p.* 64. *t.* 15.

Testudo palustris? *Lin. Syst. Nat. Gmel. p.* 1041.

The shell of this Tortoise is of a flatter form than in many others, and, in the larger specimens, nearly smooth, but in those of a less advanced age is often marked pretty strongly by several concentric furrows: the middle range of pieces composing the disk are five in number, more elevated than the side-pieces, and mostly hexagonal, projecting behind into an obtuse carina: the side pieces are four on each side, and are pentangular: all are of a brownish chesnut-colour marked with several paler zones or lines; or in other words, it might be said, that the ground colour is pale, with brown zones and centres: the under or lower shell is of a yellowish white, with a dusky or blackish streak continued round each piece, at no great distance from its edge or commissure: the sides of each of the marginal pieces are also marked in a similar manner: the hind part of the margin of the shell appears slightly crenated or notched with somewhat distant undulations, though this is merely owing to the projecting and rounded junctures of the marginal pieces on that part, and not

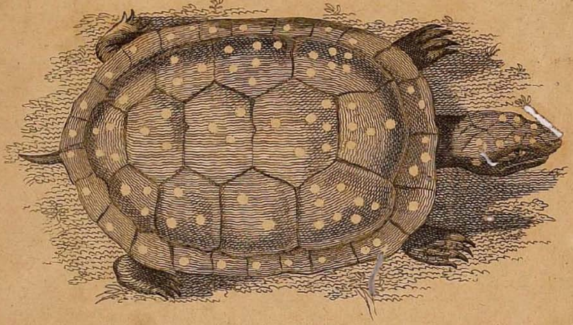
to any indentations on the pieces themselves. The head is smooth, yellowish, striped, and varied with black: the legs dusky above, and beneath beautifully marked by numerous narrow, transverse, black bars; the skin on each side the body is also marked in a similar manner: the hind feet are widely webbed; and the claws on all the feet are sharp and moderately strong. The shell measures from four to six inches, or more. This species is a native of North America, and is sold in the markets at Philadelphia, and elsewhere, under the name of *Terrapin**. It is an inhabitant of the waters, and seems to have been first described by Dr. Browne, in his Natural History of Jamaica, in which island it is common, and is said by Browne to be a wholesome and even delicate food. It grows, according to that author, to the length of eight or nine inches.

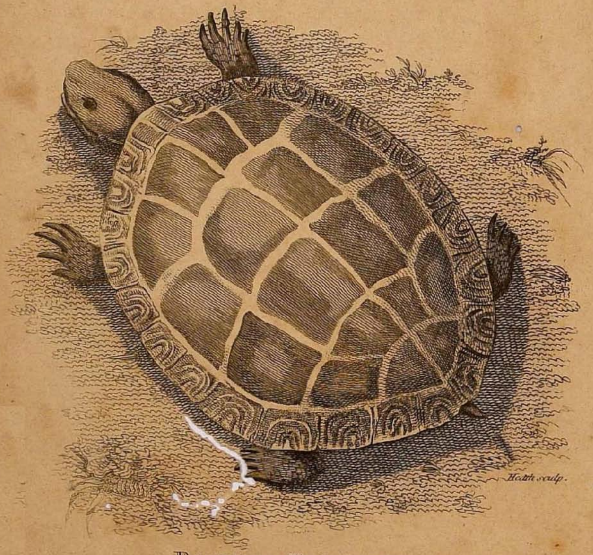
## VAR.

In the Leverian Museum is a large and beautiful specimen of the shell of this species, which is remarkable for having the dark zones on the several pieces of the shell double; being slightly separated by an intermediate line of the pale or yellowish ground-colour. This shell is represented in the present work.

* This name is applied indiscriminately in America to several other species.

SPOTTED TORTOISE.






PAINTED TORTOISE.

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## PAINTED TORTOISE.

Testudo Picta. *T. testa oblonga demisse convexa, lævi, fusca, scutellis flavo marginatis.*

Tortoise with oblong, slightly convex, smooth, brown shell, with the scutella bordered with yellow.

*T. Testa oblonga, demisse convexa, lævissima, scutellis disci medii subquadrangularibus, flavo marginatis; sterno longitudine scuti. Schoepf. Test. p. 20. t. 4.*

Testudo picta. *T. testa plana, utrinque macula duplici ex atro-cærulescente notata, scutellis margine flavo cinctis, collo per longitudinem flavo nigroque striato. Lin. Syst. Nat. Gmel. p.* 1045.

Cinereous Tortoise? *Brown's Zool. p.* 116. *t.* 48. *f.* 1, 2.

The remarkable colours of the shield of this species are sufficient to distinguish it pretty readily from all others: the shell is of a smooth surface, of a flattened or but slightly convex form, and of a chesnut-brown colour, paler or darker in different individuals, and consisting, as usual, of thirteen segments, each of which is of a form approaching to square, and pretty deeply edged or bordered with pale yellow: a stripe of the same colour also runs down the middle of the dorsal segments, while the marginal pieces, which are twenty-five in number, are each marked by a semioval spot of the same colour at the edge, surrounded by two, or sometimes by three yellow bands, following the direction of the first-mentioned spot, and thus forming so many semi-elliptic yellow zones or stripes on each piece. The neatness and accuracy of these, as well as of the yellow borders on the large or middle segments

of the shell, vary, as may be supposed, on different individuals, and in general seem most distinctly expressed on the smallest specimens. This may be considered as one of the middle-sized tortoises: the shell measuring from four to six inches in length, or somewhat more: the head is moderately small, and covered with a smooth skin; blackish above, but yellow on the sides and under part, and very elegantly streaked in a longitudinal direction, with several double rows of black streaks: the legs are blackish, and marked with two longitudinal yellow stripes: the claws are sharp and long, those on the fore feet five in number, and those on the hind feet four. The tail is blackish, scaly, moderately sharp-pointed, and marked on each side with yellow streaks. It is a fresh-water species, and inhabits slow and deep rivers in North America. In clear sunny weather these animals are said to assemble in multitudes, sitting on the fallen trunks of trees, stones, &c. and immediately plunging into the water on the least disturbance. They are said to swim very swiftly, but to walk slowly; to be able to continue many hours entirely beneath the water, but not to survive many days if kept out of their favourite element. They are very voracious, destroying ducklings, &c. which they seize by the feet, and drag under water. They are sometimes used as a food. The colour, as has been above observed, varies: being sometimes of a blackish brown, at other times of a reddish chesnut: the yellow markings are also either pale or deep in

different individuals, and sometimes whitish: the inferior or under edges of the upper shell, as well as the upper edges or commissures of the lower, are elegantly streaked with black, as if artificially painted, and this variegation is continued over the skin of the sides of the body.

VAR.

The very small Tortoise, figured in Mr. Brown's Illustrations of Zoology, under the name of *T. cinerea*, notwithstanding some slight variations in point of form, colour, and even in the number of laminæ, can hardly be considered in any other light than as the young of the above species. It may also be farther observed, that, on viewing a figure of the T. picta, the spectator might at first imagine the shell to be divided into eighteen instead of thirteen segments, on account of the yellow dorsal stripe.

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## SPOTTED TORTOISE.

Testudo Guttata. *T. testa oblonga modice convexa, lævi, fusca, guttis flavis sparsis.*

Tortoise with oblong, moderately convex, smooth, brown shell, with scattered yellow spots.

Testudo terrestris Amboinensis. *Seb.* 1. *p.* 130. *t.* 80. *f.* 7.

Testudo punctata. *T. testa oblonga, modice convexa, lævi, fusca, guttis flavis sparsis. Schoepf. Test. p.* 25. *t.* [illegible]

The Testudo guttata, or Spotted Tortoise, may be as readily ascertained as the species before de-

scribed, or *Picta*; its colour being equally remarkable. In its shape it resembles the former, having a slightly convex, smooth shell, consisting of the usual number of pieces, viz. thirteen on the middle or disk, and twenty-five on the margin: the form of the middle divisions is obscurely hexagonal, and of the side ones subquadrangular; every piece, both of disk and margin being marked by a few distantly placed, round, yellow spots, of dissimilar size, but all rather small than large. Both spots and ground colour vary somewhat in different specimens; and it is observed that in such shells as are deepest or blackest, the spots are of a paler or more citron yellow: on the contrary, where the shell inclines more to a chesnut or reddish brown, the spots are of a deeper or more orange yellow. This species, like the former, is rather small, and is a native of North America, inhabiting rivers and lakes. The young are scarcely larger than pigeons' eggs, and are very black, beautifully spotted with gold-colour.

## ELEGANT TORTOISE.

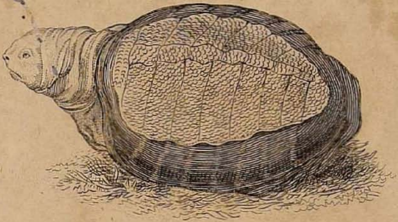
Testudo Elegans. *T. testa orbiculata convexa flava, disco maculis transversis ovatis fuscis.*

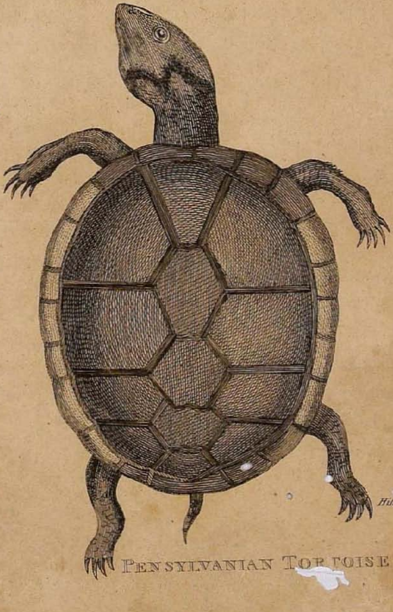
Tortoise with orbicular, convex, yellow shell, with transverse, oval, brown spots.

Testudo terrestris Ceilonica elegans minor. *Seb.* 1. *p.* 126. *t.* 79. *f.* 3.

The animal described and figured by Seba, under the title of *Testudo terrestris Ceilonica elegans minor*, is a small Land-Tortoise, with the shell nearly circular in its outline, and about two inches in length: its colour is a bright yellow, its surface apparently smooth, and at each of the commissures or joinings of the pieces composing the disk is a large oval, or rather leaf-shaped, black or dark brown transverse spot; the pattern forming three rows of transverse spots down the disk; and at the upper junctures, or those where the ultimate pieces of the disk join those of the margin, is a broad spot of a more fasciated form: there are also two rather irregular or slightly flexuous black lists running down the shell, between the rows of spots: the marginal pieces are each marked by a transverse black belt or zone, thus forming a spotted edge round the whole: the head appears to be short and thick, and covered with small scales: the feet short, strong, scaly, and unwebbed, as in other land Tortoises, and furnished with five claws on each: the tail very short. Nothing particular seems to be known of its history. The species

LA CHAGRINEE. *Cepede*. 14.





*Hill sculp*

PENSYLVANIAN TORTOISE.

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figured by Mr. Schoepf, as the *T. elegans* of Seba, must be a very different animal, and has all the appearance of a variety of the *geometrica.*

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## AREOLATED TORTOISE.

Testudo Areolata. *T. testa modice gibba, scutellis subquadrangulis, elevatis, profunde sulcatis, areolis depressis scabris. Schoepf. Test.* 104. *t.* 23.

Tortoise with moderately convex shell, with subquadrangular, elevated, deeply furrowed scutella, and depressed rough areolæ.

Testudo terrestris Brasiliensis. *Seb.* 1. *t.* 80. *f.* 6.

Testudo areolata. *T. pedibus digitatis, testæ gibbosæ scutellis elevatis subquadrangulis striatis, medio depressis scabris. Thunb. Nov. Act. Acad. Suec.* 8. *p.* 180.

This species, long since figured in the work of Seba, appears to have been either overlooked by Linnæus, or purposely omitted on account of his not having had the opportunity of examining a specimen himself, and fearing to rely too much on a figure accompanied by a slight description. It is one of the smaller Tortoises, and is a terrestrial species; but its native country seems to be not distinctly known. Seba calls it Brasilian; but Thunberg, who has described it in the eighth volume of the new Swedish Transactions, affirms that the specimen he possessed came from the East Indies, though he knew not its native country. The length of this animal is about three or four inches only: the shell is moderately convex, the scutella of a subquadrate form, broader than

long, each having a pretty large depressed areola or central part, which is yellow, roughish, and surrounded by a whitish or pale zone, the remaining part or broad margin being brown and marked by three or four pretty distinct or strong furrows. The margin consists of twenty-five pieces. The shell appears to vary, like most others, in the intensity of its colours, and even sometimes in the number of pieces composing the disk, which, in a specimen described and figured in Mr. Schoepf's work, consists of fifteen instead of thirteen pieces. In the Leverian Museum is also a fine specimen with the same part consisting of fourteen pieces.

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## SERRATED TORTOISE.

Testudo Serrata. *T. testa depressa flavescente, punctis subfuscis irrorata, scutellis omnibus disci carinatis, margine postico testæ serrato.*

Tortoise with depressed yellowish shell, minutely freckled with dusky specks; all the scutella of the disk carinated, and the hinder margin of the shell serrated.

Testudo Spengleri? *Lin. Syst. Nat. Gmel. p.* 1043.

This I describe as a new species, agreeing with no other yet figured or mentioned in any work on natural history. It is a small species, the shell measuring only three inches and three quarters in length, and rather more than two inches and a half in the widest part. Its form is that of a long oval; its convexity rather slight: its colour a pale yellow-brown, very thickly freckled, if closely

inspected, with minute, confluent, dusky specks. The disk consists, as usual, of thirteen pieces or scutella, rather broad, those of the lower part having a gradual inclination to a sharpened form, which in the three lowermost is complete: down the back runs an uncommonly distinct carina, extending uniformly through every middle scutellum, and having a breadth of about the tenth of an inch, and a flat surface: down each of the lateral rows of scutella also runs a very distinctly marked carina, but far less conspicuous than the former, and with an acute instead of flattened surface; but the principal character of the species consists in the acute projections of the five lowermost marginal pieces on each side, forming a very strongly and deeply serrated outline on that part of the shell. All the scutella in this species, but especially the pointed lower ones, are somewhat imbricated, so as to lap over each other. The colour of the under shell is blackish, with yellowish margins. This shell is in the Leverian Museum.

## LITTLE TORTOISE.

Testudo Pusilla. *T. pedibus subdigitatis, testa hemisphærica, scutellis convexis trapeziis margine striatis disco punctatis. Lin. Syst. Nat. p.* 353.

Tortoise with subdigitated feet, and hemispheric shell with convex, trapezial scutella striated on the margin and punctated on the disk.

The African Land Tortoise. *Edw. pl.* 204.

This is figured and described by the accurate Edwards, who informs us that he received two specimens from West Barbary, which were kept by him for two years in the garden of the College of Physicians. It is thus described by Edwards: "The iris of the eye is of a reddish hazel colour; the lips hard, like the bill of a bird; the head covered with scales of a yellowish colour; the neck, hind legs, and tail, covered with a flexible skin of a dirty flesh-colour; the fore legs covered with yellow scales on their outsides, which are partly exposed when the legs are drawn in: the shell round, and pretty much rising on its upper side, and flat beneath; the pieces or compartments are of a yellowish colour, clouded and spotted with large and small irregular dusky or blackish spots, and are also furrowed or creased, the creases lessening, one within the other, till they reach the top or middle part of each: the tail is thick, scaly, and about an inch in length; and the vent is situated within the tail itself near the base: there are five claws on the fore feet, and four on the

hind, all strong, black, rather bowed, and sharp-pointed."

On a general view this species appears extremely to resemble the T. Græca, or common tortoise, the shell measuring about four inches in length, and the whole animal, from the nose to the end of the tail, about six.

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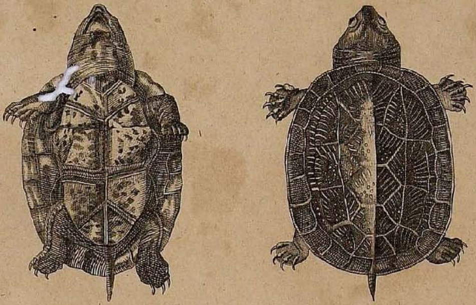
## TRICARINATED TORTOISE.

Testudo Tricarinata. *T. testa ovali demisse convexa, margine integra, scutellis disci omnibus carinatis. Schoepf. Test. p. 9. t. 2.*

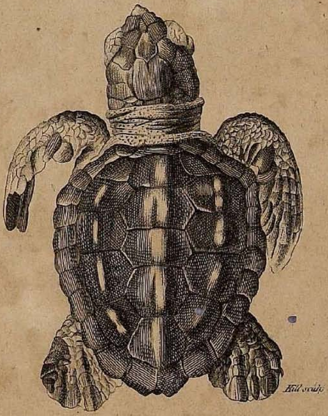
Tortoise with oval slightly convex shell, with entire margin, and all the scutella of the disk carinated.

This is described by Mr. Schoepf from a small specimen in the collection of Mr. Hermann, preserved in spirits, and seeming to be a very young animal; yet differing in so many respects from any other kind, that Mr. Schoepf has no hesitation in considering it as a distinct species. It agrees as to shape and other particulars with Linnæus's description of his *T. orbicularis*. Its size scarce exceeds that of a large walnut: its colour is blackish: the shell consisting of thirteen scutella, each row marked on the middle by a longitudinal carina, and wrinkled with several lateral furrows and roughish points; the marginal pieces are twenty-three in number: the head is large and of a brown colour, variegated on the sides with white: the legs short, strong, and covered with a scaly skin:

TRICARINATED TORTOISE.



LOGGERHEAD TURTLE. _Young.



Hill sculp.

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on the fore feet are five distinct toes, connected to the very tips by a web, and terminated by so many sharp, crooked claws: the hind feet have only four toes, with sharp claws, and connected also by a web, with the appearance of a small unarmed fifth or spurious toe: the tail is short, conical, scaly, pointed, and but little exceeding the margin of the shell in length: the under shell is yellowish, spotted, and varied with brown.

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## ROUGH TORTOISE.

Testudo Scabra? *T. pedibus palmatis, testa planiuscula, scutellis omnibus intermediis dorsatis. Lin. Syst. Nat. p.* 351.

Tortoise with palmated feet, and flattish shell, with all the intermediate scutella elevated on the back.

Testudo terrestris Amboinensis minor. *Seb.* 1. *p.* 126. *t.* 79. *f.* 1, 2.

The shell of the species quoted by Linnæus in his description of *T. scabra* is figured in its natural size in the work of Seba, who affirms that it never grows larger than represented in his figure; measuring about two inches and a half in length, and near two inches in breadth; being of a cordated figure, or somewhat pointed at the bottom. Its colour, according to Seba, is light reddish, prettily variegated on the head and shell with white lines and spots, in a kind of flamy or wavy pattern: the feet are marked with red specks, and have each five toes with sharp claws: the head is very prominent, and the eyes small: down the back of the disk are represented in Seba's engraving three

very conspicuous white lines or carinæ; so that the title of *tricarinata* would apply to this, as well as to the species so denominated by Mr. Schoepf.

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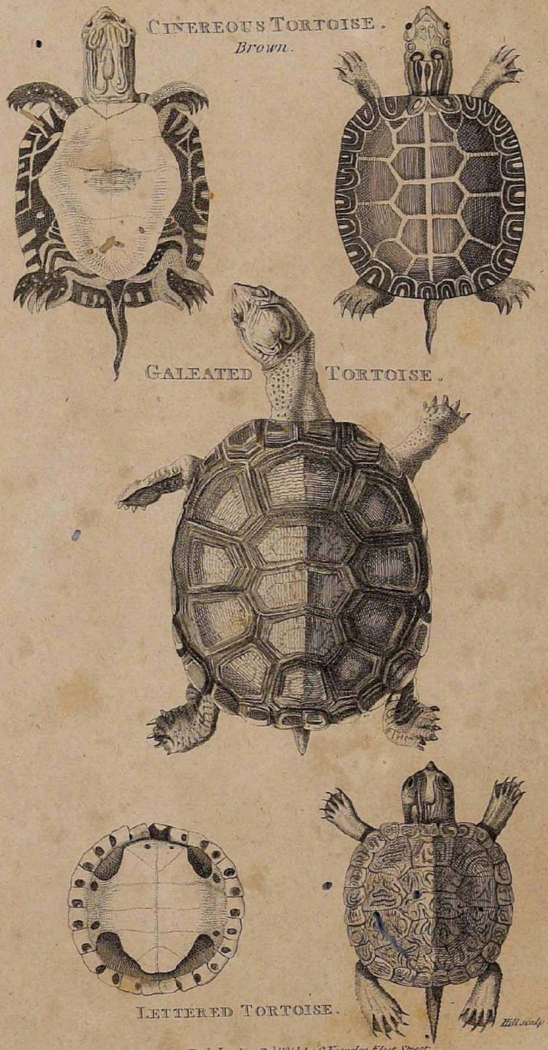
## LETTERED TORTOISE.

Testudo Scripta. *T. testa orbiculari depressa, scutellis omnibus superne characteribus notatis; marginis viginti quatuor inferne guttatis. Schoepf. Hist. Test.* 16. *t.* 3. *f.* 2.

Tortoise with orbicular depressed shell, with all the scutella marked by variously-formed characters, and the marginal pieces spotted beneath.

Testudo scabra. *Thunberg.*

This also is a species sometimes quoted for the *T. scabra* of Linnæus, and proposed as such by Mr. Thunberg. It is very small, flattish, of an orbicular form, and of a whitish colour, tinged with yellow, and marked over the whole upper surface with variously-formed black, narrow lines and undulations: the number of scutella is thirteen, a keel running down the middle range: the margin appears, from Mr. Schoepf's figure borrowed from Thunberg, to consist of twenty-five pieces, all of which are marked in the same manner as the disk: the head is large and whitish, striped about the neck with longitudinal black streaks; the snout slightly sharpened; the feet large, webbed, and pentadactylous, with sharp claws: the tail about a fourth part of the length of the shell, and sharp-pointed: the under surface is white, with the marginal pieces pale yellow, and a brown spot on each. It evidently appears to be a very young

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animal, the shell not exceeding the size of a half-crown piece. Its native place is not mentioned. Its character given by Thunberg is T. testa planiuscula, antice retusa, dorso carinato, subtus albo nigroque varia. *Pedes palmati; ungues acuti.*

## GALEATED TORTOISE.

Testudo Galeata. *T. testa depressa ovali, dorsi scutellis tribus intermediis acute carinatis, marginis scutellis viginti quatuor. Schoepf. Test. p.* 12. *t.* 3. *f.* 1.

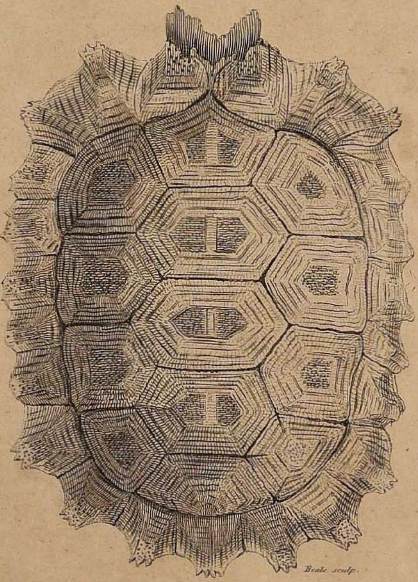
Tortoise with depressed oval shell, with the three middle scutella sharply carinated, and twenty-four marginal pieces.

Testudo scabra. *Retzius.*

The species of Tortoise really intended by Linnæus under the title of *scabra*, and very briefly described in the Systema Naturæ, it would be utterly in vain to determine; since the characters given will apply equally to several different kinds; but the animal supposed by Mr. Retzius, to be the T. scabra of Linnæus, is a small species, the shell of which measures about two inches and a half in length and near two inches in breadth, and rises into a convexity of about one inch: its colour is a pale brown, and it consists of thirteen scutella, the middle range of which is remarkably broad, and strongly carinated in the middle: all are variegated and roughened with blackish oblong points or elevated lines, directed towards the centre, the margins being smooth, blackish, and slightly striated towards the sutures: in some

places the before-mentioned blackish lines pass through the margin; in others not: the marginal pieces are twenty-four in number, and of the same colour as the dorsal ones, but with white edges: the under surface is varied with brown and white: the head is above half an inch long, smooth, and plated above with a kind of shield, and terminates in a slightly pointed snout: the neck is moderately long, roughish, and white beneath: on each side the opening of the lower jaw are two short retractile cirri or verrucæ: the legs are brownish, slightly warted or scaled, and whitish beneath: all the feet are webbed, and have five toes, with as many sharpish claws: the tail is short, conic, and sharp-pointed. The native place of this species is unknown, but it was brought to Mr. Retzius from India, and lived two years, being kept in fresh water, out of which it occasionally staid for a few hours: it lived on bread, &c. and sometimes on flies. From the beginning of October to the middle of May it remained without food, scarce extending its head above the surface of the water. It delighted in sunshine, endeavouring to climb up the sides of the vessel occasionally, in order to enjoy its influence. It being doubtful whether this animal be the real *T. scabra* of Linnæus, Mr. Retzius proposes the trivial name of *galeata*, from the armed or cataphracted covering of the head.

# Denticulated Tortoise



Beale sculp.

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## DENTICULATED TORTOISE.

Testudo Denticulata. *T. pedibus subdigitatis, testa, orbiculato-cordata, margine eroso. Lin. Syst. Nat. Gmel. p.* 1043.
Tortoise with subdigitated feet, and orbicularly-cordated shell with denticulated marginal segments.

The shell of this species is of a pale yellowish-brown colour, measuring about four inches in length, and about three in breadth, and is covered on the disk by broad hexagonal and pentagonal scutella, which are of a flattened form, with a large distinct area or middle space, granulated by small tubercles, the remainder marked by five lines or furrows. The edge of the shell consists of twenty-three pieces, all of which project in a serrated manner round the outline, those toward the ends being terminated by a sort of abrupt denticulated process, as shewn in the annexed engraving, which is taken from a specimen in the Leverian Museum. The convexity of the shell is moderate, and it appears to be a terrestrial species. It is supposed to be a native of North America. The feet in the Gmelinian edition of the Systema Naturæ are said to be without distinct toes, and the tail short.

## PENSYLVANIAN TORTOISE.

Testudo Pensylvanica. *T. testa elliptica lævi unicolore, dorso planiusculo, scutellis intermediis rhomboideis subimbricatis, primo subtriangulo. Schoepf. Test. p.* 107. *t.* 24.

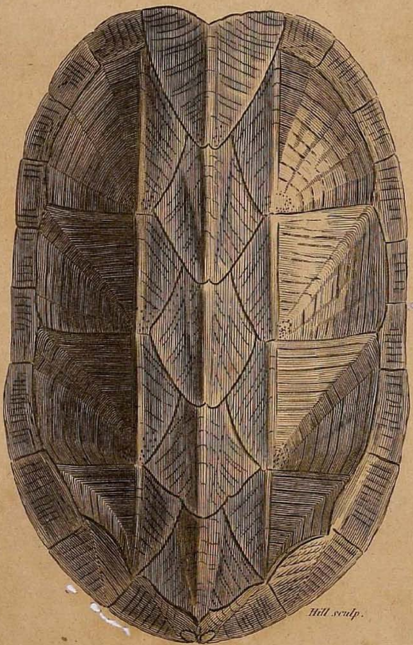
Tortoise with smooth, elliptic, brown shell, with flattish back, the middle range of scutella subrhomboid and subimbricated, the first subtriangular.

Testudo Pensylvanica. *T. palmarum unguibus quinque, plantarum quatuor, caudæ apice corneo acuto. Lin. Syst. Nat. Gmel.* 1042.

Small Mud Tortoise. *Edw.* 287.

This is one of the smaller Tortoises, the shell measuring three or four inches in length when apparently full grown. Its form is oval, its convexity moderate, its surface smooth, and its colour brown: the middle range of dorsal pieces are of a longer form than in other Tortoises, and are so placed as to lap over each other at the tips, which are slightly emarginated: the uppermost piece is of a triangular shape: the two upper side-pieces irregularly or obscurely quadrangular, and the remaining ones pentangular: the marginal pieces are twenty-three in number, the upper or joining piece being very small: the edges of the shell are tinged with dull yellow: the lower shell also is of a yellowish colour, tinged with brown round the commissures or junctures of the pieces, and is constituted nearly on the same plan as in the *close tortoise*, the upper and lower division being moveable in such a manner as to enable the animal to conceal itself almost entirely by shutting

## Pensylvanian Tortoise.
*var?*




*From Leverian Museum.*

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up the shell. It is from this circumstance that it appears to have been sometimes confounded with the species just mentioned, though widely differing in other particulars. The head, on the parts surrounding the jaws and the eyes, is of a reddish yellow colour: the upper part dusky, as are also the neck, legs, and tail: the feet are webbed, and have five toes on the fore, and four on the hind feet: the tail is small, rather short, and terminates in a callous or horny point, curving slightly downwards. It is a native of North America, and is found in Pensylvania, &c. inhabiting muddy waters, and is known by the name of the Mud Tortoise. When living, it is said to have a strong musky odour.

### VARIETIES.

Mr. Schoepf mentions a variety, in which the under shell was not moveable, and imagines it to constitute a sexual difference.

In the British Museum, are specimens of about the size figured by Edwards, one of which differs very considerably from the rest in having a very conspicuous carina or ridge down the back, owing to the sudden sloping of the sides: in other particulars it resembles the rest.

A much more remarkable variety (if it be not rather a distinct species) occurs in the Leverian Museum. This shell measures about four inches and three quarters in length, and has every appearance of being full grown. Its colour is

brown; its surface smooth; the shield pieces sulcated in the manner shewn by the annexed figure, and marked by three strongly elevated dorsal carinæ, passing through the whole length of the shell, the sides of which do not slope, but maintain the usual convexity. It is probably a shell of this species in its fullest growth; and may serve as an example of the great impropriety of hastily affixing specific characters and trivial names to animals whose real and complete habit can only be known by examining them in all their stages of growth. The name of *tricarinata* would be much more expressive of the appearance of this shell, than of that to which it is applied in the work of Mr. Schoepf.

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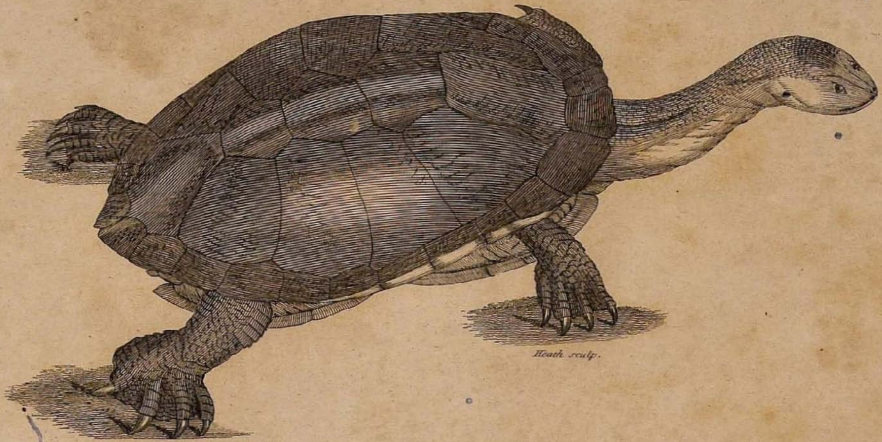
## LONG-NECKED TORTOISE.

Testudo Longicollis. *T. ovata glabra, collo longissimo.*
Smooth ovate Tortoise, with extremely long neck.
Long-necked Tortoise. *Zool. N. Holl. p.* 19. *pl.* 7.

This species is a native of Australasia or New Holland, and is of the river or fresh-water kind. The shell is of an oval form, moderately convex, of a dark olive-brown colour, and nearly smooth, though in some parts bearing a resemblance to the grain of common black leather. It measures about five inches and a half in length, and about four and a half in breadth: the disk consists of thirteen, and the margin of twenty-five pieces: the under shell is of a yellowish tinge, and stained

LONG-NECKED TORTOISE.



*Heath sculp.*

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at the junctures with black brown, forming so many crossings of that colour: the head is smooth; the neck extremely long, appearing, so far as could be judged from the specimen described, to be almost always in an exserted state (though this is merely a conjecture): its upper surface is marked with oval scaly granulations, which give it an extremely serpentine appearance: the fore feet are short and tetradactylous; softly scaled, and as it were pinnated by a continuation of skin: the hind feet are of similar structure, but somewhat longer, and more widely pinnated: the claws on all the feet resemble those of birds, and are four in number: the tail is so extremely short as scarce to deserve the name, being merely a slight prolongation, or rather rising, of the skin. The colour of the whole animal above is deep olive-brown; beneath paler, or inclining to whitish. Nothing particular is known of its manners or history.

## CASPIAN TORTOISE.

Testudo Caspica. *T. testa orbiculari, palmarum unguibus quinis, plantarum quaternis, capite squamato, cauda nuda. Lin. Syst. Nat. Gmel. p.* 1041.

Tortoise with orbicular shell, scaly head, five claws on the fore-feet, four on the hind, and naked tail.

Described by Gmelin in his Russian Travels; who represents it as a native of the region of Hircania, inhabiting fresh waters, and sometimes growing to a vast size, so that some men

may stand together on its shell: the pieces composing the disk are subquadrate; those of the border parallelogrammic: the colour variegated with black and green; the lower shell blackish, spotted with white.

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## FIERCE TORTOISE.

Testudo Ferox. *T. testa cartilaginea ovata, pedum unguibus tribus, naribus tubulatis prominentibus. Lin. Syst. Nat. Gmel. p.* 1039. *Penn. Act. Angl.* 61. *p.* 266. *t.* 10.

Tortoise with ovate, cartilaginous shell, three claws on the feet, and tubular, prominent nostrils.

Testudo rostrata? *T. testa orbiculari ovata, monophylla, coriacea, carinata, rugis obliquis e punctis elevatis striata, scabra. Schoepf. Test.* 93. *t.* 20?

*T. pedibus palmatis, testa integra, carinata, elevato-striata, scabra? Thunberg. Nov. Act. Acad. Suec.* 8. *p.* 179.

T. cartilaginea? *Boddaert. Schr. Berl. Nat.* 3. *p.* 265.

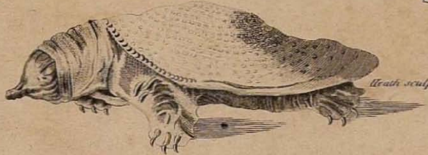
T. Boddaerti? *Schneid. Leipz. Mag. z. Nat. & Oec.* 1786.

T. triunguis? *Forsk. Fn. Arab.* 9.

T. membranacea? *Blumenb. Natur. p.* 257.

This remarkable species is distinguished by the unusual nature of its shield, which is hard or osseous on the middle part only, while the edges gradually degenerate into a flexible coriaceous verge: this shield is obscurely marked with five or six transverse bands, and granulated with small warts or prominences, which gradually enlarge as they approach the leathery or flexible edge: the head is rather small, and of an unusual shape, being somewhat trigonal, with the snout very much lengthened, and the upper part drawn out, as it were, into a subcylindric form, terminated

FIERCE TORTOISE.



Heath sculp.

T. ROSTRATA *Thunberg.*

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by the nostrils, and projecting much beyond the lower mandible: the neck, when retracted, appears very thick, and surrounded by many wreaths or folds of skin; but when exserted, is of very great length, so as nearly to equal that of the whole shell: the legs are short, thick, and covered with a wreathed skin: the feet are all furnished with strong and broad webs, connecting the three last toes of each; the three first on each foot are furnished with pretty strong claws; but the remaining ones are unarmed; and besides the real or proper toes are two spurious or additional ones on the hind, and one on the fore feet, serving to strengthen and expand the web to a greater degree: the tail is short, pointed, and curving inwards: the eyes are very small and round. The colour of this animal on the upper parts is a deep brownish olive, and on the under parts white; the shell being marked beneath in a very elegant manner, with ramifications of vessels disposed upon it.

This species is found in Pensylvania, Carolina, &c. &c. and, contrary to the nature of most others of the tribe, is possessed of very considerable vigour and swiftness of motion, springing forwards towards its assailant, when disturbed or attacked, with great fierceness and alacrity. Its length is about a foot and half, or more, and its breadth about fifteen inches. It was first described by Dr. Garden, who communicated it to Mr. Pennant, by whom it was introduced into the Philosophical Transactions. A specimen examined

by Dr. Garden weighed twenty-five pounds, but it is said to grow so large as to weigh seventy pounds. The individual mentioned by Dr. Garden layed fifteen eggs during the time it was kept, which were exactly spherical, more than an inch in diameter, and fifteen more were found on dissection. Its flesh is said to be extremely delicate, being equal, if not superior, even to that of the Green Turtle.

The Great soft-billed Turtle, described by Mr. Bartram in his Travels, appears to be the same with this. It is said by Mr. Bartram to be of a flat form, two feet and a half long, and a foot and a half broad: the shield soft and cartilaginous on each side, and this part sometimes becomes gelatinous on boiling: the fore and hind part of the shield is beset with round horny warts or tubercles: the sternum or under shell semicartilaginous, except on the middle, where it is bony: the head large and clubbed, and of an oval form: the nose extended, truncated in the manner of a hog's snout: the eyes large, and seated at its base: mouth wide; the edges tumid and wrinkled, and bearded by several long pointed warts or processes, which are extensile at the pleasure of the animal, and give it an ugly and forbidding aspect. Mr. Bartram's figure also represents the throat and part of the neck as furnished with similar warts. Mr. B. adds, that it is fond of the muddy parts of rivers, &c. hiding itself among the roots and leaves of water plants, and thence springing on its prey, stretching out its neck to an incredible length,

and seizing with wonderful celerity young birds, &c. &c. It is found in all the rivers, lakes, and pools, of East Florida, weighing from thirty to forty pounds. The warts or processes on each side the neck may constitute perhaps a sexual difference in this species, since they are not to be found in that described by Dr. Garden and Mr. Pennant.

I must here observe, that the figure of a dried specimen of this tortoise, published in the Philosophical Transactions, does not express with sufficient accuracy the character of the upper surface or shield, which in the specimen itself, now preserved in the British Museum, is marked with very numerous foveolæ or depressed points, and with seven obscurely marked transverse dorsal lines on the shield; thus dividing it into so many segments, while the extremities of the ribs are visible on each side beneath the commencement of the coriaceous part.

VAR. ?

Testudo Rostrata. *Thunberg. Nov. Act. Suec.* 8. *t.* 7. *f.* 2, 3.

This should seem to be no other than the young of the species above described; the general form and particular structure of the feet, &c. agreeing with the former. The specimen described by Thunberg was about the size of the palm of the hand, and of a brown colour.

Allied to the above is also the species thus briefly described by Forskahl, in his Fauna Arabica, un

der the title of *Testudo triunguis.* T. pedum unguiculis tribus, dorsi disco rugoso orbiculato, limbo depressiore lævi, naribus in cylindro elevato et ultra caput prominente.

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## CHAGRIN TORTOISE.

Testudo Granulata. *T. testa orbiculata, planiuscula, granulata, margine cartilagineo.*

Tortoise with orbicular, flattish, granulated shell, with cartilaginous border.

La Chagrinée. *Cepede. Ovip. p.* 171. *pl.* 11.

This remarkable species seems allied to the T. ferox, having the shield furnished with a cartilaginous and flexible border. It is described by Mons. Cepede, who tells us it was brought from India by Mons. Sonnerat. It is of a flattish or very slightly convex form, the shield measuring about three inches and nine lines in length, and three inches and six lines in breadth: it appears composed, as it were, of two shields, one over the other; the superior being the smallest and shortest, measuring only two inches and eight lines in length, and two inches in breadth: it is of a bony substance, and roughened all over with small granules like the surface of chagrin, and consists of twenty-three pieces, eight of which are placed on each side, constituting two rows of large segments, separated by the middle range of six smaller pieces, which unite with the last or uppermost piece on the anterior part of the disk: the

borders of this shield are semitransparent and cartilaginous, and through them may be perceived the ribs of the animal, which are eight on each side: the border is wider behind than on the fore parts: the under or thoracic shell is extended more in front and behind than the upper, being a little emarginated in front, cartilaginous, transparent; and consists of seven bony laminæ of unequal sizes, and of a roughened or chagrined surface: three of these divisions are placed forwards, two in the middle, and two behind: the head resembles those of fresh-water tortoises, and the wrinkles of the skin round the neck shew that the animal can elongate that part easily: the feet and tail were wanting in the specimen, and nothing particular was known relative to its habits or history.

From its small size we may reasonably suppose it to have been a young animal.

## FIMBRIATED TORTOISE.

Testudo Fimbriata. *T. testa ovali subconvexa trifariam carinata, pedibus subdigitatis, naso cylindrico proboscideo, collo utrinque fimbriato. Bruguiere Journ. d'Hist. Nat. No.* 7. *p.* 253. *pl.* 13. (*T. Matamata.*)

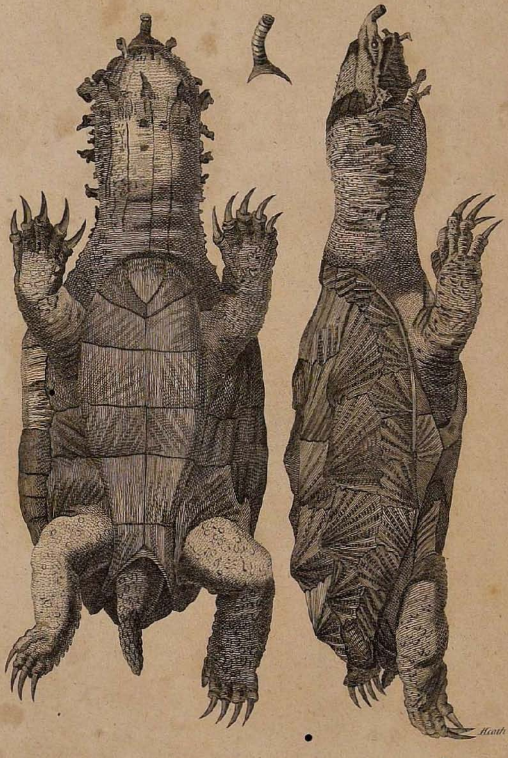
Tortoise with oval, subconvex, triply carinated shell, subdigitated feet, cylindric snout, and neck fimbriated on each side.

Testudo fimbriata. *T. testa striata et echinata, fronte callosa triloba. Schneid. Schildkr. p.* 349.

Testudo terrestris major, putamine chinato et striato, s. Raparapa. *Barrere. Fr. Equin. p.* 163.

Testudo scorpioides? *T. pedibus subdigitatis, fronte callosa triloba, cauda unguiculata. Lin. Syst. Nat. p.* 352.

THIS is an animal of a very singular and unpleasing appearance. It was first described by Mons. Bruguiere in the *Journal d'Histoire Naturelle*, published at Paris in the year 1792. The length of the shell is about fifteen inches or more, and its breadth eleven, but the length of the whole animal from the nose to the end of the tail is two feet three inches. The head is large and flat, rounded in front, and edged on the sides with warty and wrinkled membranaceous appendages of about five inches wide, and is also covered behind by a three-lobed prominence: the nose is of a shape resembling a proboscis, being cylindric, ten lines long, truncated, pierced by the nostrils, at the tip, where they are separated by a cartilaginous division: the eyes are round, seated at the base of the proboscis, and are ten lines distant from each other: the mandibles are




FIMBRIATED TORTOISE.

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equal in length, and entire; the inferior being furnished with a kind of lateral membrane: the gape of the mouth is wide: the neck is seven inches long, and four and a half broad; above flat and warted; and on each side furnished with six fimbriated membranaceous appendages longitudinally disposed, and alternately larger and smaller: the under part of the neck is also beset with four appendages of a similar kind, which are placed opposite to the two on the head, and are increased by two longitudinal wrinkles: the fore feet are scaly and warty, and have five indistinct toes, with as many longish and sharp claws, which are convex above and flat beneath: the hind feet are scaly, and the toes are still less distinct, and have only four claws, the fifth toe being unarmed and very short: the tail is an inch long, slightly bent, and covered with a granulated skin; the disk of the shell is subconvex, and consists of thirteen semicircular pieces, almost conical, mucronated, and marked with three elevated lines, most prominent on the hind part: all the pieces are wrinkled, and are irregularly notched at the hind part: the marginal pieces are twenty-five in number, almost square, radiated on the surface with oblique wrinkles, and toothed on the interior edge. The colour of the whole is brown, somewhat paler beneath.

This animal is said to be a native of Guiana, and to have been once common in the rivers of the isle of Cayenne; but has been so much thinned by the fishermen, that it is now become rare,

it being considered as an excellent food. It feeds on aquatic plants, and is said to wander by night to some little distance from the banks in quest of pasture. The specimen above described was a female, and was brought alive to Mr. Bruguiere: it lived for some time on herbs, bread, &c. and layed five or six eggs, one of which produced a young tortoise in the box in which it was kept.

It does not appear certain that this species is the T. scorpioides of Linnæus, since in his very brief description he does not mention the remarkable figure of the snout.

## SNAKE TORTOISE.

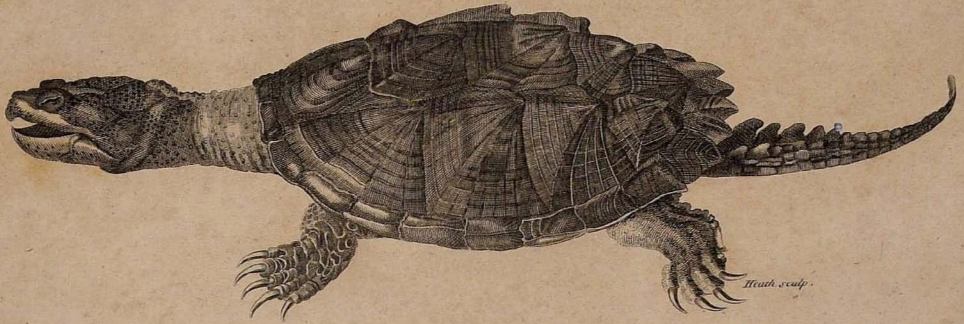
Testudo Serpentina. *T. testa ovali depressa, trifariam convexa, squamis acuminatis, margine postico rotúndato acute serrato. Schoepf. Test. p.* 28. *t.* 6.

Tortoise with ovate, depressed, triply carinated, sharp-scaled shell, rounded and acutely serrated at the posterior margin.

Testudo serpentina. *T. pedibus digitatis, testa subcarinata, postice obtusa, acute quinquedentata. Lin. Syst. Nat. p.* 354.

Serrated Tortoise. *Penn. Arct. Zool. Suppl. p.* 97.

This species, first described by Linnæus, appears to have been very obscurely known; having been figured in no work of Natural History till it was introduced into Mr. Schoepf's publication. It is a native of North America, where it inhabits stagnant waters, growing to the weight of fifteen or twenty pounds, and even more, and preying on fish, ducklings, &c. &c. seizing its prey with



Heath sculp.

SNAKE TORTOISE.

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great force, stretching out its neck and hissing at the same time. Whatever it seizes in its mouth it holds with great force, and will suffer itself to be raised up by a stick rather than quit its hold. The head is large, depressed, triangular, and covered with a scaly and warty skin: the orbits of the eyes are oblique; the mouth wide; the mandibles sharp; the neck covered by scaly warts, and appearing short and thick when the animal is at rest, but when in the act of springing on its prey, is stretched out to a third part of the length of the shell: the toes of all the feet are distinct, but connected by a web; and are five in number on the fore feet, and four on the hind; all armed with claws longer than the toes themselves: the tail is strait, and about two thirds the length of the shell; it is compressed, attenuated, and crested on the upper part with sharp bony scales directed backwards and gradually decreasing to the tip, while the sides and under part are covered with smaller scales: the under part of the body is covered by a loose, wrinkled skin, beset with smallish soft scales and granules: the shell is slightly depressed, of an oval form, and consists of thirteen pieces in the disk, each of which rises behind into a kind of projection or obtuse point, and is pretty strongly radiated and furrowed in different directions: the general colour of the whole is a dull chesnut-brown, lighter or paler beneath.

This animal conceals itself in muddy waters, in such a manner as to leave out only a part of its

back, like a stone or other inanimate object, by which means it the more easily obtains its prey. Mr. Pennant, in the supplement to his Arctic Zoology, mentions this as a new species, under the name of Serrated Tortoise. In New York it is known by the title of the *Snapping Tortoise.* Linnæus seems to have been mistaken in supposing it a native of China.

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## SCALY TORTOISE.

Testudo Squamata. *T. corpore ovato superne una cum collo cauda & pedibus squamato, inferne lævi & molli. Lin. Syst. Nat. Gmel. p.* 1040. *Schneid. Schildkr. p.* 340.

Tortoise with ovate body, smooth beneath, but covered above, together with the neck, feet, and tail, with numerous scales.

Testudo squamata. *Bont. Jav. p.* 82.

This highly singular species is described and rudely figured in Bontius's History of Java, and it may perhaps be doubted whether it properly belongs to this genus or not. It is, according to Bontius, an inhabitant of fresh waters, where it burrows under the banks, in order perhaps to deposit its eggs. The head is small, and resembles that of a snake, with small moveable eyes, and sharp teeth: the whole body, as well as the neck, legs, and tail, covered with scales resembling those of a carp, but stronger or thicker: the tail is rather long than short: the under parts are soft, smooth, and tender. Bontius informs us that he saw two of these animals, and kept one

for some time in water. The Javanese call it by the name of *Taunah*, or the digger: the Chinese by that of *Lary*, or the Runner; a burlesque title, given it on account of its slow pace. Its flesh is said to be extremely delicate; and the Chinese use the pulverised scales dissolved in water, as a remedy in dysenteric cases, and against the colic. The figure in Bontius, which, as before observed, is somewhat rude, in some degree resembles that of a Manis or Pangolin.

This animal has been described from actual inspection by no author but Bontius. Its size is not mentioned. It is said to prey on small fish. By a strange oversight in the Systema Naturæ, Linnæus places its name among the synonyms of the Testudo imbricata. It seems in some degree to connect the Lizard and Tortoise tribes. Mr. Schoepf is not willing to admit it into the present genus.

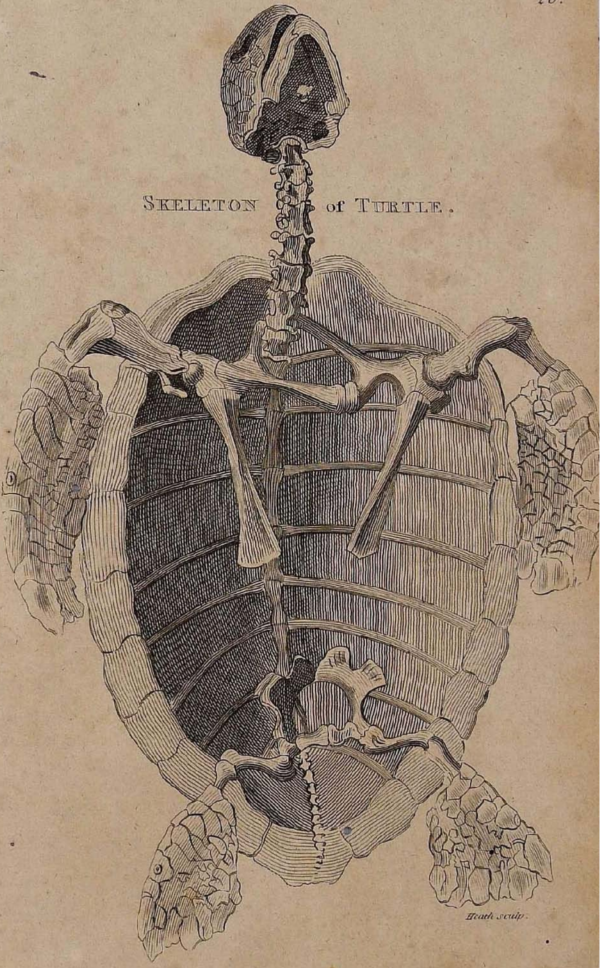
# SEA TORTOISES,

OR

# *TURTLES.*

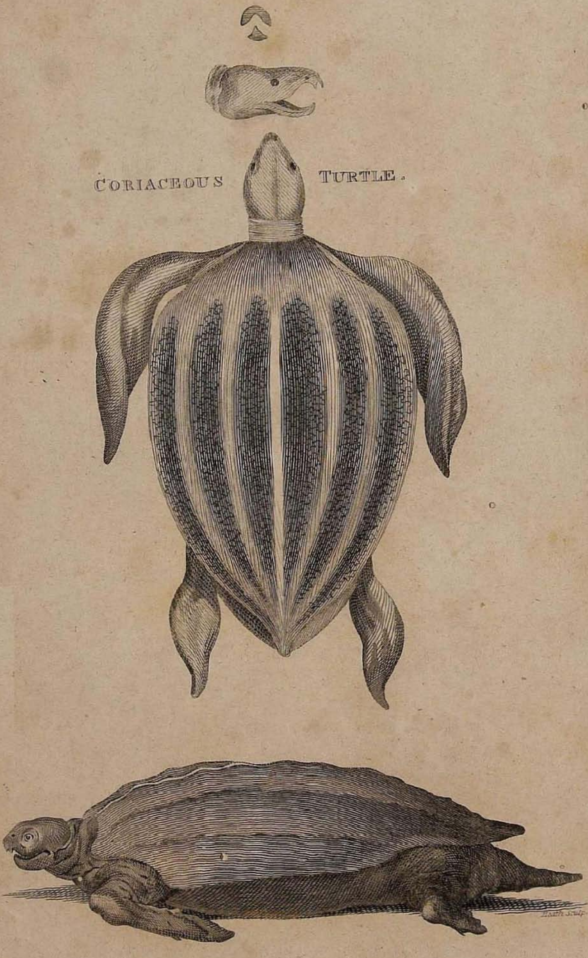
THE Marine Tortoises, or *Turtles*, as they are commonly called, are distinguished from those of the preceding division by their very large and long fin-shaped feet, in which are inclosed the bones of the toes; the first and second alone on each foot being furnished with visible or projecting claws, the others not appearing beyond the edge. The shield, as in the land tortoises, consists of a strong bony covering, in which are imbedded the ribs, and which is coated externally by hard horny plates; in one or two species much thicker or stronger than those of the land tortoises.

SKELETON of TURTLE.



*Heath sculp.*

*1801 Jan.^y 1 London Publish'd by C. Kearsley Fleet Street.*




1802, Decr. 1. London Published by G. Kearsley, Fleet Street.

## CORIACEOUS TURTLE.

Testudo Coriacea. *T. fusca, subtus pallidior, testa coriacea costis quinque longitudinalibus tuberculatis.*

Brown Turtle, paler beneath, with coriaceous shell, marked by five longitudinal tuberculated ribs.

Testudo coriacea. *T. pedibus pinniformibus muticis, testa coriacea, cauda angulis septem exaratis. Lin. Syst. Nat. p.* 350.

*Testudo testa coriacea, per longitudinem striata. Lin. Syst. Nat. Gmel. p.* 1036. *Schneid. Schildkr. p.* 312.

Coriaceous Tortoise. *Penn. Brit. Zool.* 3. *p.* 7. *pl.* 1.

La Luth. *Cepede. Ovip. p.* 111. *pl.* 3.

Of all the Marine Tortoises this appears to grow to the largest size, having been sometimes seen of the length of eight feet, and of the weight of a thousand pounds. It differs from the rest of its tribe in the form of its body, which is longer in proportion, and still more in its external covering, which, instead of being of a horny nature, as in others, is of a substance resembling strong leather, marked over the whole surface into small, obscurely subhexagonal and pentagonal subdivisions or lineations, which do not take away from the general smoothness of the surface. Along the whole length of this covering or leathery shield run five distinct, strongly prominent, tuberculated ribs or ridges; and indeed if those which border the sides be taken into the account, we may say there are seven ridges on the shield. There is no under or thoracic shell, so that the animal might form a distinct genus from the rest of the tortoise tribe. The head is large, and the

upper mandible notched at the tip in such a manner as to give the appearance of two large teeth or processes, between which, when the mouth is closed, is received the tip of the lower mandible. The fins or legs are large and long, and covered with a tough leathery skin: the tail is rather short and sharp-pointed. The general colour of the whole animal is dusky brown, paler beneath. This singular species is a native of the Mediterranean sea, and has at different periods been taken on the coasts both of France and England. In the month of August, in the year 1729, a specimen was taken about three leagues from Nantz, not far from the mouth of the river *Loire*, and which measured seven feet one inch in length, three feet seven inches in breadth, and two feet in thickness. It is said to have uttered a hideous noise when taken, so that it might be heard to the distance of a quarter of a league; its mouth at the same time foaming with rage, and exhaling a noisome vapour. In the year 1778, a specimen was taken on the coast of Languedoc, which measured seven feet five inches in length. In July, 1756, one was taken on the coast of Cornwall, which, according to Dr. Borlace, "measured six feet nine inches from the tip of the nose to the end of the shell; ten feet four inches from the extremities of the fore fins extended; and was adjudged to weigh eight hundred pounds weight." The fine specimen in the Leverian Museum was of similar weight, and was taken on the coast of Dorsetshire.

This species is found not only in the European seas, but in those of South America also, and occasionally appears about some of the African coasts.

According to Cepede, the Coriaceous Tortoise is one of those with which the Greeks were well acquainted, and he supposes it to have been the species particularly used in the construction of the ancient lyre or harp, which was at first composed by attaching the strings or wires to the shell of some marine tortoise. We may add, that the ribs or prominences on the back of the shell bear an obscure resemblance to the strings of a harp, and may have suggested the name of Luth or Lyre, by which it is called among the French, exclusive of the use to which the shell was anciently applied.

The Coriaceous Tortoise, says Mr. Pennant, is reputed to be extremely fat, but the flesh coarse and bad: the Carthusians, however, will eat no other species.

It may be added, that the small sea tortoise described by Mr. Pennant in the Philosophical Transactions for the year 1771, is evidently no other than the young of this animal.

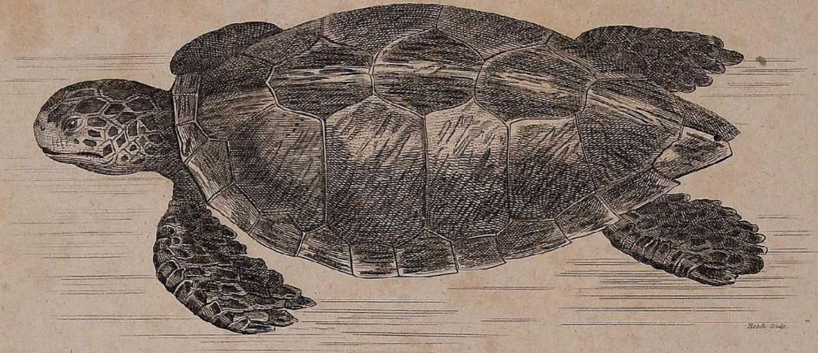
## GREEN TURTLE.

Testudo Mydas. *T. testa subfusca, scutellis disci tredecim.*
Brownish Turtle, with thirteen scales on the disk.
Testudo Mydas. *T. pedibus pinniformibus, unguibus palmarum binis, plantarum solitariis.* *Lin. Syst. Nat.* p. 350.
Testudo viridis. *T. pedibus pinniformibus, unguibus palmarum binis, plantarum solitariis, testa ovata.* *Schneid. Test.* p. 299.
Testudo Mydas. *Lin. Syst. Nat. Gmel.* p. 1037.
Testudo rostro gallinaceo. *Walb. Chelon.* p. 85.
Common Green Turtle.
Esculent Turtle.

The Green Turtle, so named, not on account of its being externally of that colour, but from the green tinge* which its fat frequently exhibits when the animal is taken in its highest state of perfection, may be considered as one of the largest of this genus; often measuring above five feet in length†, and weighing more than five or six hundred pounds. Its shell is of a somewhat heart-shaped form, or pointed at the extremity, and consists of thirteen dorsal segments or divisions, surrounded by twenty-five marginal pieces. Its colour is a dull palish brown, more or less variegated, with deeper undulations, but not exhibiting those strong and beautiful colours which so peculiarly distinguish that of the T. imbricata,

* This is supposed to be chiefly derived from the vegetable substances on which the animal feeds, and more particularly to the *Zostera marina*, or Turtle-grass, of which it is said to be peculiarly fond.

† According to some accounts more than six feet.



Heath sculp.

GREEN TURTLE.

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or Hawkbill Turtle, which affords the tortoise-shell used for ornamental purposes and in various manufactures, having neither sufficient strength or beauty; but so much is the flesh esteemed, that the inhabitants of the West-Indian islands have long considered it as one of the most excellent articles of food, and have gradually succeeded in introducing a similar taste among some of the European nations. In our own country in particular it is in the highest estimation, and is regularly imported in considerable quantities to supply the luxury of the metropolis. The introduction of the Green Turtle as an article of luxury into England is of no very distant date, and perhaps can hardly be traced much farther than about fifty years backward *. In reality, so little was the nature of the sea tortoises understood by the

* In the part entitled *Historical Chronicle*, of the Gentleman's Magazine for the year 1753, I find the following article: "Friday, Aug. 31, a Turtle, weighing 350lb. was eat at the *King's Arms* Tavern, Pall Mall; the mouth of an oven was taken down to admit the part to be baked."

At p. 489, for the same year, is the following paragraph: "Saturday, Sept. 29, the *Turtler*, Capt. *Crayton*, lately arrived from the Island of *Ascension*, has brought in several Turtles of above 300lb. weight, which have been sold at a very high price. It may be noted, that what is common in the *West Indies* is luxury here."

In the *Historical Chronicle* of the same publication, for the year 1754, I find the following article: "Saturday, July 13, the right hon. the Lord Anson made a present to the Gentlemen of *White's* Chocolate-house of a Turtle, which weighed 300lb. weight, and which laid five eggs since in their possession. Its shell was four feet three inches long, and about three feet wide. When its head was cut off, at least five gallons of blood issued from it, and so

Europeans before that period, that the different kinds were in general confounded by navigators, whose accounts relative to their character as a food varied according to the species which they happened to take for that purpose; some insisting that the Turtle was a coarse and unpalatable diet, while others considered it as of the highest degree of excellence.

"Of the Sea Turtles," says Catesby, "the most in request is the *Green Turtle*, which is esteemed a most wholesome and delicious food. It receives its name from the fat, which is of a green colour. Sir Hans Sloane informs us, in his History of Jamaica, that forty sloops are employed by the inhabitants of Port Royal, in Jamaica, for the catching them. The markets are there supplied with Turtle as ours are with butcher's meat. The Bahamians carry many of them to Carolina, where they turn to good account; not because that plentiful country wants provisions, but they are esteemed there as a rarity, and for the delicacy of their flesh. They feed on a kind of grass, growing at the bottom of the sea, commonly called Turtle-grass. The inhabitants of the Bahama islands, by often practice, are very expert at catching Turtles, particularly the Green Turtle. In April they go, in little boats, to Cuba and

full was it of life, that the mouth opened and shut for an hour after it was cut off."

The above paragraphs are sufficient to shew that the introduction of Turtle into England was at that time of very recent date, and that the dressing one at a tavern was an article of sufficient importance to be noticed in a newspaper.

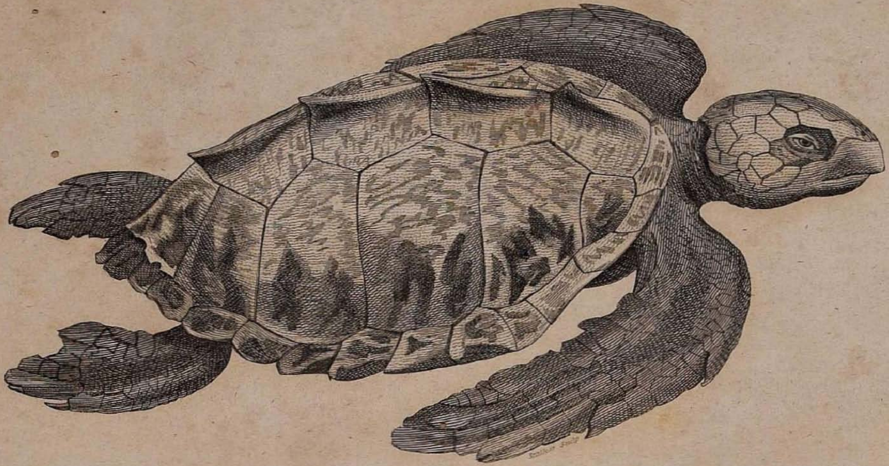
other neighbouring islands, where, in the evening, especially in moonlight nights, they watch the going and returning of the Turtle to and from their nests, at which time they turn them on their backs, where they leave them, and proceed on, turning all they meet; for they cannot get on their feet again when once turned. Some are so large that it requires three men to turn one of them. The way by which the Turtle are most commonly taken at the Bahama islands is by striking them with a small iron peg of two inches long, put in a socket, at the end of a staff of twelve feet long. Two men usually set out for this work in a little light boat or canoe, one to row and gently steer the boat, while the other stands at the head of it with his striker. The Turtle are sometimes discovered by their swimming with their head and back out of the water, but they are oftenest discovered lying at the bottom, a fathom or more deep. If a Turtle perceives he is discovered, he starts up to make his escape, the men in the boat pursuing him, endeavour to keep sight of him, which they often lose, and recover again by the Turtle putting his nose out of the water to breathe: thus they pursue him, one paddling or rowing, while the other stands ready with his striker. It is sometimes half an hour before he is tired: then he sinks at once to the bottom, which gives them an opportunity of striking him, which is by piercing him with an iron peg, which slips out of the socket, but is fastened with a string to the pole. If he is spent and tired by being long

pursued, he tamely submits, when struck, to be taken into the boat or hauled ashore. There are men who by diving will get on their backs, and by pressing down their hind-parts, and raising the fore-part of them by force, bring them to the top of the water, while another slips a noose about their necks."

Though the Green Turtle is a native of the West-Indian seas, yet it is sometimes driven by storms out of its usual residence, and instances have occurred in which it has been taken on the coasts of Europe. An occurrence of this kind is said by the Count de Cepede to have happened in France, a Turtle having been taken at Dieppe in the year 1752, which weighed between eight and nine hundred pounds, and was almost six feet in length, and four wide. It may, however, be doubted whether this animal was not rather a Caretta or Loggerhead, than a Green Turtle. Another, of still larger size, is also said to have been taken on the coast of France, about two years afterwards.

"The Sea Tortoises, or Turtles, in general," says Catesby, "never go on shore but to lay their eggs, which they do in April: they then crawl up from the sea above the flowing of high water, and dig a hole above two feet deep in the sand, into which they drop in one night above an hundred eggs, at which time they are so intent on Nature's work, that they regard none that approach them; but will drop their eggs into a hat, if held under them; but if they are disturbed before they begin to lay, they will forsake the place, and seek an-

LOGGERHEAD TURTLE.



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other. They lay their eggs at three, and sometimes at four different times; there being fourteen days between every time; so that they hatch and creep from their holes into the sea at different times also. When they have laid their complement of eggs, they fill the hole with sand, and leave them to be hatched by the heat of the sun, which is usually performed in about three weeks." It may be proper to add, that the eggs are about the size of tennis-balls, round, white, and covered with a smooth parchment-like skin.

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## LOGGERHEAD TURTLE.

Testudo Caretta. *T. variegata, scutellis dorsalibus quindecim, intermediis postice gibbis.*

Variegated Turtle, with fifteen dorsal scales, those of the middle range gibbous toward their tips.

Testudo Caretta. *T. pedibus pinniformibus, unguibus palmarum plantarumque binis, testa ovata acute serrata. Lin. Syst. Nat. p.* 351.

*Testudo scutis dorsalibus postice gibbis, unguibus palmarum plantarumque binis. Lin. Syst. Nat. Gmel. p.* 1038.

Testudo Cephalo. *Schneid. Schildkr. p.* 303.

*T. testa ovato-cordata, serrata; scutellis disci quindecim, dorsalibus postice gibbis. Schoepf. Test. p.* 67.

This species exceeds in size* every other yet known, except perhaps the *coriacea*. In its general

* In the Leverian Museum is a skull, seemingly of this species, which is said to have been taken from a turtle weighing more than sixteen hundred pounds: it measures rather more than a foot in length.

appearance it most resembles the *Mydas* or green turtle, but is distinguished by the superior size of the head, the proportional breadth of the shell, and by its deeper and more variegated colours, resembling those of the T. imbricata, or Hawks-bill; but its principal mark of distinction consists in the number of dorsal segments or scutella of the shell, which instead of thirteen, as in other species, amount to fifteen; the lateral as well as the middle range containing five pieces, of which the two superior are considerably smaller than the rest. This number (except in cases of extraordinary variety) is observed to be constant, and therefore forms a far more certain specific character than the number of claws on the fins, by which Linnæus attempted to distinguish the marine tortoises. Each of the scutella in the middle dorsal range is also extremely protuberant at the end or tip, rising into a subacute prominence, and thus forming a row of tubercles along the back of the shield. The fore feet are very large and long: the hind feet much shorter, though broad. This animal inhabits the same seas with the green turtle, but is also diffused into very remote latitudes, being often found in the Mediterranean, and in particular about the coasts of Italy and Sicily. Considered in a commercial view, it is of little or no value; the flesh being coarse and rank, and the laminæ or plates of the shell too thin for general use. It is said, however, to afford a good quantity of oil, which may be used for lamps, &c. The Loggerhead Turtle is a very strong and fierce

animal, and is even dangerous; defending itself with great vigour with its legs, and being able to break the strongest shells and other substances with its mouth. Aldrovandus assures us, that on offering a thick walking-stick to one which he saw publicly exhibited at Bologna, the animal bit it in two in an instant.

"The Loggerhead Turtles," says Catesby, "are the boldest and most voracious of all other turtles: their flesh is rank, and therefore little sought for, which occasions them to be more numerous than any other kind. They range the ocean over, an instance of which, among many others that I have known, happened the 20th of April, 1725, in lat. 30 degrees north. When our boat was hoisted out, and a Loggerhead Turtle struck as it was sleeping on the surface of the water: this by our reckoning, appeared to be the midway between the *Azores* and the *Bahama-Islands;* either of which places being the nearest land it could come from, or that they are known to frequent; there being none on the north continent of America, farther north than Florida. It being amphibious, and yet at so great a distance from land in the breeding-time, makes it the more remarkable. They feed mostly on shell-fish, the great strength of their beaks enabling them to break very large shells, as the large Buccinums and Trochi."

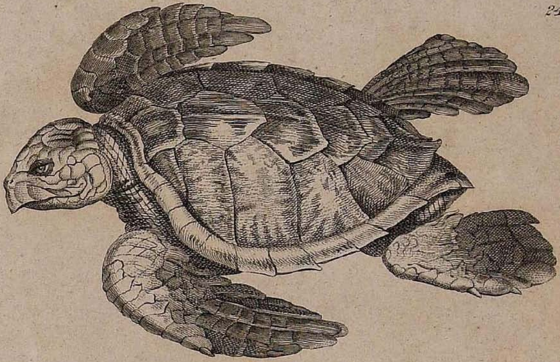
The Sea Tortoises, like the terrestrial ones, may well be supposed to vary a little sometimes, as to the exact regularity and number of their scales or scutella. We may, therefore, on this principle,

account for the contradictory descriptions met with in authors relative to species which, in every respect, but the number of scales, appear to be the same. An instance of this occurs in the seemingly accurate figures of Gottwald, which agree in general appearance with those of the *Mydas*, but at the same time have more numerous scales on the shield, and consequently do not correspond with the established character of that animal; or if we suppose them, which is more probable, to represent the *Caretta*, they still exhibit a variety with sixteen instead of fifteen scales on the shield.

The species figured in Aldrovandus, Quad. Ovip. pp. 714, 715. was probably intended for the Caretta, having fifteen dorsal scales: it is not, however, to be considered as a very accurate representation of the animal, and is merely admitted into the present publication in order to enable the scientific reader to exert his own judgment on the subject.

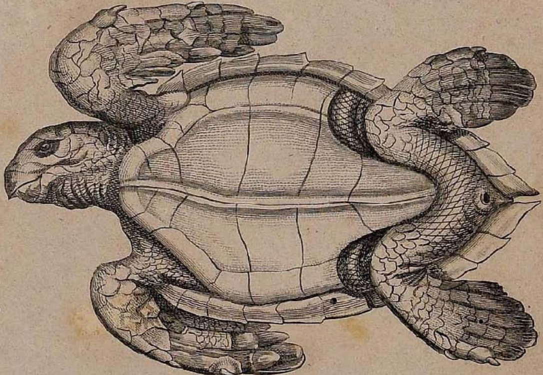
In reality it is not without a very careful examination that the true specific differences of the marine tortoises can be well understood; since, exclusive of the plates of the shell, they are known to vary in those marks which have been sometimes fixed upon as specific characters, and particularly in the number of external or visible claws on the fins, from which Linnæus attempted to distinguish them; subsequent observations having proved that this mark is perhaps less to be depended upon than any other; and we are ex-

24.



LOGGERHEAD TURTLE.

*from Gottwald.*



*Hill sculp.*

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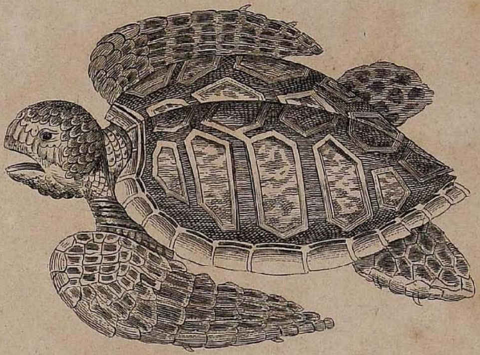
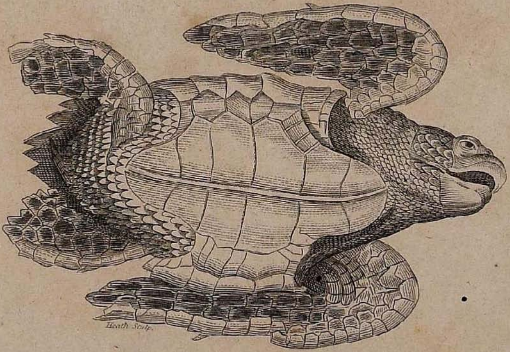


LOGGERHEAD TURTLE,

from Aldrovandus.



*Heath Sculp.*

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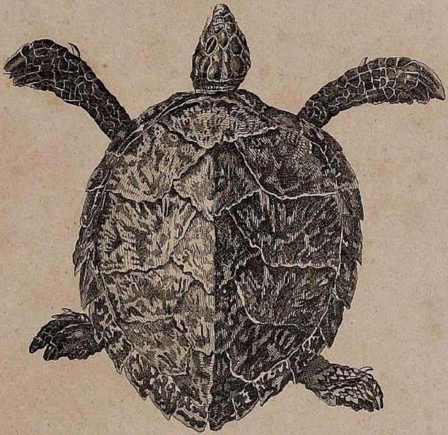
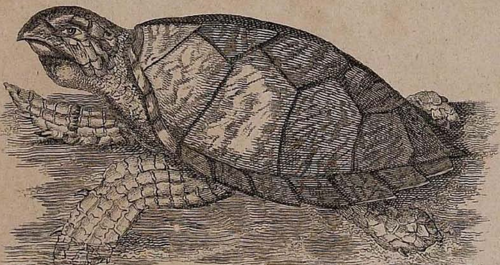


IMBRICATED TURTLE.



Hill sculp.

1801 Jan.y 1 London Published by G Kearsley Fleet Street.

pressly informed, by an author quoted in Mr. Schoepf's publication *, that on examining a great many specimens of the *T. Mydas*, or common green turtle (which Linnæus characterises by having two claws on the fore and one on the hind feet), some were found with two claws on all the feet, others with two claws on the fore and one on the hind; and, lastly, others with only a single claw on all the feet.

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## IMBRICATED TURTLE.

Testudo Imbricata. *T. variegata, scutellis disci imbricatis tredecim.*

Variegated Turtle with thirteen imbricated scales on the disk.

Testudo imbricata. *T. pedibus pinniformibus, testa cordata subcarinata serrata, scutellis imbricatis, cauda squamata. Lin. Syst. Nat. p.* 350.

*T. palmarum plantarumque unguibus binis, scutis laxe atque imbricatim incumbentibus. Lin. Syst. Nat. Gmel. p.* 1036. *Schneid. Schildkr. p.* 309.

Imbricated Turtle, or Hawksbill.

The Testudo imbricata is so named from the peculiar disposition of its scales or laminæ, which commonly lap over each other at their extremities in the manner of tiles on the roof of a building. The outline of the shell, viewed from above, is more heart-shaped than in other sea tortoises, and terminates more acutely: each of the middle row of scales on the back is also of a sharpened form

* Quotation given by Mr. Schoepf from a writer on this subject in the *Allgem. Litt. Zeit. Suppl.* 1787. *No.* 19. *p.* 148.

at the tip, more especially in the young or half-grown animal, and has a ridge or carina down the middle: the head is smaller in proportion than in other turtles; the neck longer, and the beak narrower, sharper, and more curved, so as to bear no inconsiderable resemblance to the bill of a hawk, from which circumstance the animal derives its common or popular name of the *Hawksbill Turtle.* The fore legs are longer than in the rest of the tribe, and it is said that when turned or laid on its back, the animal is enabled by their assistance, to reach the ground, in such a manner as to recover its former situation, which no other turtle can do. In old specimens the neatness of the shell, and the well-defined outline of the scales, is occasionally impaired, and this seems to be one principal reason of its having been sometimes confounded with the Caretta, or Loggerhead Turtle. The Hawksbill Turtle is a native of the Asiatic and American seas, and is sometimes, though less frequently, found in the Mediterranean. Its general length seems to be about three feet, from the tip of the bill to the end of the shell; but it has been known to measure five feet in length, and to weigh five or six hundred pounds. In the Indian ocean in particular, specimens are said to have occurred of prodigious magnitude.

The shell of this animal was anciently used for a shield, and still serves for that purpose among barbarous nations. The flesh is in no estimation as a food, the lamellæ or plates of the shell, which are far stronger, thicker, and clearer than in any

other kind, constituting the sole value of the animal, and affording the substance particularly known by the name of *tortoise-shell:* they are semitransparent, and most elegantly variegated with whitish, yellowish, reddish, and dark brown clouds and undulations, so as to constitute, when properly prepared and polished, one of the most elegant articles for ornamental purposes.

The natural or general number of the dorsal pieces is thirteen; the marginal row consisting of twenty-five smaller pieces. This external coating is raised or separated from the bony part, which it covers, by placing fire beneath the shell; the heat soon causing the plates to start, so as to be easily detached from the bone. These plates vary in thickness, according to the age and size of the animal, and measure from an eighth to a quarter of an inch in thickness. A large turtle is said to afford about eight* pounds of tortoise-shell.

In order to bring tortoise-shell into the particular form required on the part of the artist, it is steeped in boiling water, till it has acquired a proper degree of softness, and immediately afterwards committed to the pressure of a strong metallic mould of the figure required; and where it is necessary that pieces should be joined, so as to compose a surface of considerable extent, the edges of the respective pieces are first scraped or thinned, and being laid over each other during their heated

* According to Mr. Schoepf, from five to fifteen or twenty pounds; and unless the animal itself be about the weight of a hundred and fifty pounds, the shell is not worth much.

state, are committed to a strong press, by which means they are effectually joined or agglutinated. These are the methods also by which the various ornaments of gold, silver, &c. are occasionally affixed* to the tortoise-shell.

The Greeks and Romans appear to have been peculiarly partial to this elegant ornamental article, with which it was customary to decorate the doors and pillars of their houses, their beds, &c. &c. In the reign of Augustus this species of luxury seems to have been at its height in Rome.

"The Egyptians," says Mr. Bruce, in the supplement to his travels, "dealt very largely with the Romans in this elegant article of commerce. Pliny tells us the cutting them for fineering or inlaying was first practised by Carvilius Pollio, from which we should presume, that the Romans were ignorant of the art of separating the laminæ by fire placed in the inside of the shell, when the meat is taken out: for these scales, though they appear perfectly distinct and separate, do yet adhere, and oftener break than split, where the mark of separation may be seen distinctly. Martial says, that beds were inlaid with it. Juvenal, and Apuleius in his tenth book, mentions that the Indian bed was all over shining with tortoise-shell on the outside, and swelling with stuffing of down within. The immense use made of it in Rome may be guessed at by what we learn from Velleius Paterculus, who says, that when Alex-

* It may be necessary to observe, that tortoise-shell is not capable of being melted, as vulgarly supposed.

andria was taken by Julius Cæsar, the magazines or warehouses were so full of this article, that he proposed to have made it the principal ornament of his triumph, as he did ivory afterwards, when triumphing for having happily finished the African war. This too, in more modern times, was a great article in the trade to China, and I have always been exceedingly surprised, since near the whole of the Arabian gulf is comprehended in the charter of the East-India Company, that they do not make an experiment of fishing both pearls and tortoises; the former of which, so long abandoned, must now be in great plenty and excellence, and a few fishers put on board each ship trading to Jidda, might surely find very lucrative employment with a long-boat or pinnace, at the time the vessels were selling their cargo in the port, and while busied in this gainful occupation, the coasts of the Red Sea might be fully explored."

It may be doubted, however, whether the species described and figured by Mr. Bruce, and said to inhabit the Red Sea, be the real *T. imbricata;* since it appears to differ in some respects from the usual character of this animal, and particularly in not having imbricated scales.

The Testudo imbricata has been figured by Seba, though not with that minute accuracy which might have been wished. Its shell has been well represented by Grew, in his *Musæum Regalis Societatis;* but the most faithful, as well as elegant representation which has yet appeared

will be found on the plate annexed; which is taken from a drawing by the late Dr. Forster, and now preserved in the collection of Sir Joseph Banks, who politely permitted it to be engraved for the present publication.

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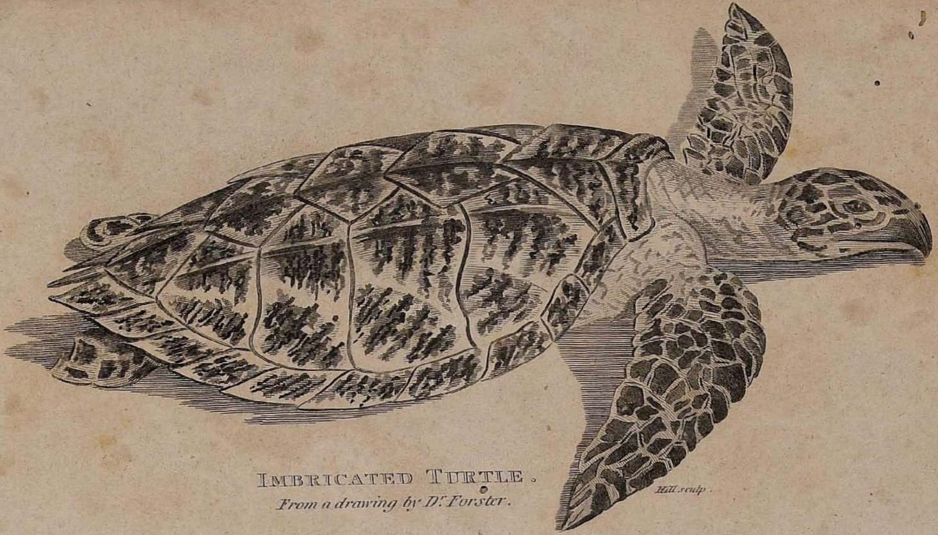
## GREEN-SHELLED TURTLE.

*Testudo testa variegata viridi.*
Turtle with green variegated shell.
La Tortue Ecaille-Verte. *Cepede Ovip. p.* 92.

THIS is so named by the Count de Cepede from the colour of its shell, which is naturally of a green cast, beautifully transparent, thin, and yet proper for a variety of ornamental purposes. The head is small and rounded; otherwise the animal resembles the common green turtle, or *Mydas*, in its general appearance, as well as in its manners, but never grows to so large a size, being commonly about a third part less. These turtles are said to be found in great quantities in the Southern Ocean, and about *Cape Blanco* in New Spain. They also occur in the Gulf of Mexico, and many of the large American rivers both above and below the line, but have never been discovered in the seas of the old continent. The flesh is said to be very delicate, and is even preferred in some places to that of the common turtle. Mons. Bomare is said by Cepede to have been the first describer of this species.



IMBRICATED TURTLE.

*From a drawing by Dr. Forster.*

*Hill sculp.*

*1801 Jan. 1 London Publish'd by G. Kearsley Fleet-Street.*

## TRUNK TURTLE.

"THIS," says Catesby, "I never saw, but was told that they grow to a very large size, of a narrow form, but very deep, the upper shell being more convex than in other kinds of Turtle. Their flesh is rank, but affords a large quantity of oil, which is all they are valued for."

## RHINOCEROS TURTLE.

La Tortue Nasicorne. *Cepede Ovip. p.* 103.

THIS, which seems not to have been yet described with sufficient accuracy by any naturalist, is said by the Count de Cepede to be a native of the American seas, and to bear a general resemblance to the common or green turtle, but is distinguished by having a large soft tubercle on the tip of the snout, in which are situated the nostrils. It is eaten in the same manner as the green turtle, and is chiefly found in the equatorial regions.

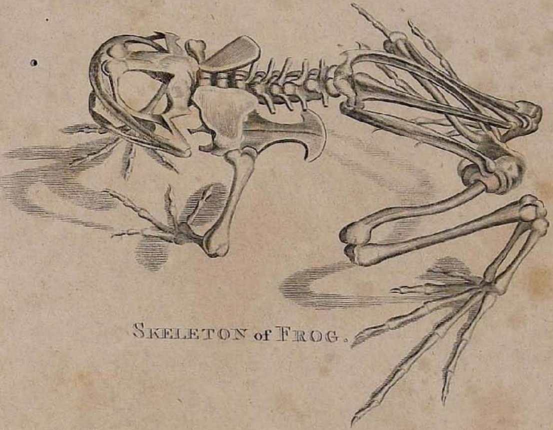
# RANA. FROG.

## *Generic Character.*

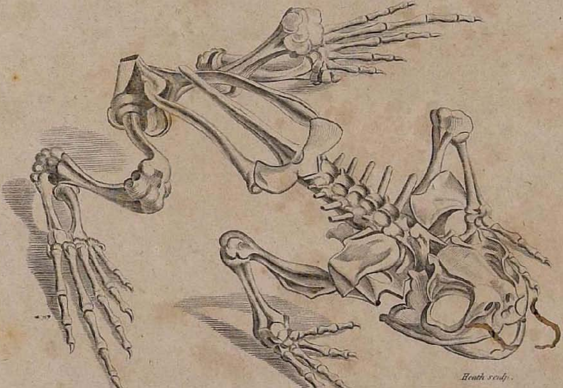
| | |
|---|---|
| *Corpus* tetrapodum, ecaudatum, nudum. | *Body* four-footed, without tail, and naked, or without any integument but the skin. |

THIS genus may be divided into three sections, viz. 1. Frogs, commonly so called, or *Ranæ*, with light active bodies, and which leap when disturbed. 2. Slender-limbed Frogs, *Hylæ*, *Calamitæ*, or *Ranæ arboreæ*, viz. such as have light bodies, very slender limbs, and toes terminating in flat, circularly expanded tips, enabling the animals to adhere at pleasure to the surface even of the smoothest bodies. Several of this division generally reside on trees, adhering by their toes to the lower surfaces of the leaves, and branches. 3. Toads, *Bufones*, or such as have large heavy bodies, short thick limbs, and which rather crawl than leap when disturbed.

It may be observed, that in the works of authors this division of the genus into three sections (which is but of late date) is not very accurately conducted; and indeed some species may be considered as of a doubtful cast, or ranking with almost equal propriety in either distribution.



SKELETON of FROG.



Heath sculp.

SKELETON of TOAD.

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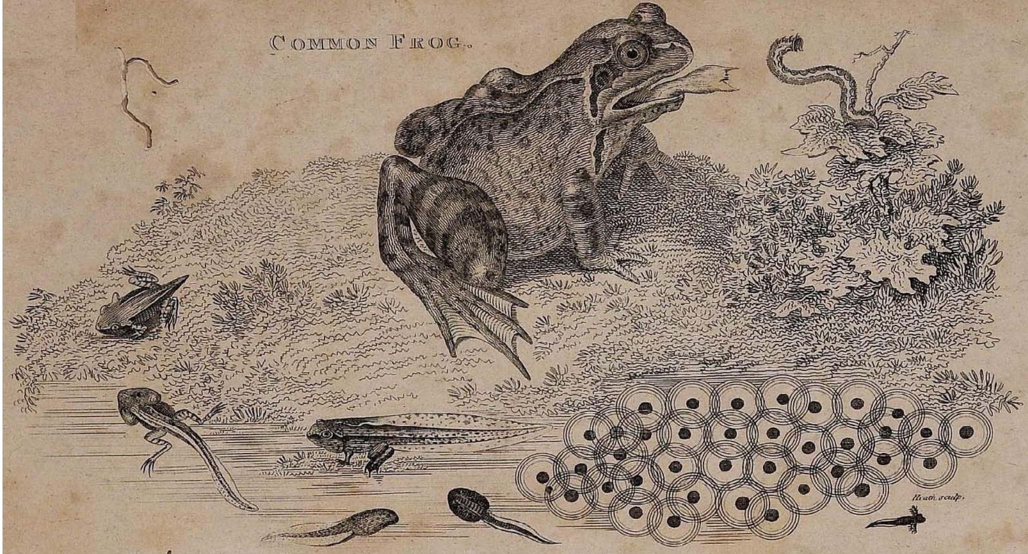
COMMON FROG.

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## COMMON FROG.

Rana Temporaria. *R. fusco-flavescens, nigro maculata, macula suboculari elongata fusca.*

Yellowish-brown Frog, spotted with black, with elongated brown patch beneath the eyes.

Rana temporaria. *R. dorso planiusculo subangulato. Lin. Syst. Nat. p.* 357.

Rana fusca terrestris. *Roes. Hist. Ran. p.* 1. *t.* 1. *&c.*

Rana. *Aldr. ovip. p.* 89.

Rana aquatica innoxia. *Gesn. aq. p.* 805.

Rana aquatica. *Raj. Quadr. p.* 241.

The Common Frog.

This is the most common of all the European species, being almost every where seen in moist situations, or wherever it can command a sufficient quantity of insects, worms, &c. on which it feeds. In colour it varies considerably, but its general tinge is olive-brown, variegated on the upper parts of the body and limbs with irregular blackish spots; those on the limbs being mostly disposed in a transverse direction: beneath each eye is a longish mark or patch, reaching to the setting on of the fore legs, and which seems to form one of its principal specific distinctions. The lower or under parts are of a pale greenish yellow cast, and much more obscurely spotted and variegated than the upper surface. The Frog, however, is not unfrequently seen, and more especially towards the close of summer, of a much brighter cast; being of a reddish or ferruginous rather than of an olive colour on the upper parts.

with very strong and vivid variegations of a deeper colour on the back and limbs, while the lower parts are yellow, spotted, and marked with light red. It is chiefly in gardens that the Frog is found thus coloured; but as this, like every other species, is in the habit of casting its skin frequently, the cuticle falling off in a somewhat irregular manner on different parts of the body, it of course varies considerably at intervals as to the brightness or intensity of its colours.

The form of the Frog is light and elegant, and its appearance lively; the limbs finely calculated for the peculiar motions of the animal, and the hind feet strongly webbed, to assist its progress in the water, to which it occasionally retires during the heats of summer, and again during the frosts of winter, when it lies in a state of torpidity, either deeply plunged in the soft mud at the bottom of stagnant waters, or in the hollows beneath their banks, till it is awakened from its slumber by the return of spring.

It is generally in the month of March that the Frog deposits its ova or spawn, consisting of a large heap or clustered mass of gelatinous transparent eggs, in each of which is imbedded the embryo, or tadpole, in the form of a round, black globule. The spawn commonly lies more than a month*, or sometimes five weeks, before the larvæ or tadpoles are hatched from it, and during this period each egg gradually enlarges in size, and a few days be-

* The time varies considerably, according to the heat of the weather and other circumstances.

fore the time of exclusion, the young animals may be perceived to move about in the surrounding gluten. When first hatched, they feed on the remains of the gluten in which they were imbedded, and in the space of a few days, if narrowly examined, they will be found to be furnished, on each side the head, with a pair of ramified branchiæ or temporary organs, which again disappear after a certain space. These tadpoles are so perfectly unlike the animals in their complete state, that a person inconversant in natural history would hardly suppose them to bear any relationship to the Frog; since, on a general view, they appear to consist merely of head and tail; the former large, black, and roundish; the latter slender, and bordered with a very broad transparent finny margin. Their motions are extremely lively, and they are often seen in such vast numbers as to blacken the whole water with their legions. They live on the leaves of duckweed and other small water-plants, as well as on various kinds of animalcules, &c. and when arrived at a larger size, they may even be heard to gnaw the edges of the leaves on which they feed; their mouths being furnished with extremely minute teeth or denticulations. The tadpole is also furnished with a small kind of tubular sphincter or sucker beneath the lower jaw, by the help of which it hangs at pleasure to the under surface of aquatic plants, &c. From this part it also occasionally hangs, when very young, by a thread of gluten, which it seems to manage in the same manner as some of the smaller slugs have been

observed to practise. Its interior organs differ, if closely inspected, from those of the future frog, in many respects; the intestines in particular are always coiled into a flat spiral, in the manner of a cable in miniature.

Indeed the anatomy of these animals exhibits so many singularities, that a volume might be filled with their history; but the nature of a work like the present forbids a detail of more than what is necessary for a clear general idea of the animal in its several states. When the tadpoles have arrived at the age of about five or six weeks, the hind legs make their appearance; gradually increasing in length and size; and, in about a fortnight afterwards, or sometimes later, are succeeded by the fore legs, which are indeed formed beneath the skin much sooner, and are occasionally protruded and again retracted by the animal through a small foramen on each side of the breast, and are not completely stretched forth till the time just mentioned. The animal now bears a kind of ambiguous appearance, partaking of the form of a frog and a lizard. The tail at this period begins to decrease; at first very gradually, and at length so rapidly as to become quite obliterated in the space of a day or two afterwards. The animal now ventures upon land, and is seen wandering about the brinks of its parent waters, and sometimes in such multitudes as to cover a space of many yards in extent. This is the phænomenon which has so frequently embarrassed the minds not only of the vulgar, but even of some superior

characters in the philosophic world; who, unable to account for the legions of these animals with which the ground is occasionally covered in certain spots, at the close of summer, have been led into the popular belief of their having descended from the clouds in showers.

As soon as the Frog has thus assumed its perfect form, it feeds no longer on vegetables, but on animal food; supporting itself on small snails, worms, &c. and particularly on insects. For the readier obtaining its prey, the structure of its tongue is extremely well calculated; being so situated that the root is attached to the fore rather than the hind part of the mouth; and, when at rest, lies backwards, as if the animal were swallowing the tip. By this means the creature is enabled to throw it out to some distance from the mouth, which is done with great celerity, and the bifid and glutinous extremity secures the prey, which is swallowed with an instantaneous motion, so quick that the eye can scarcely follow it.

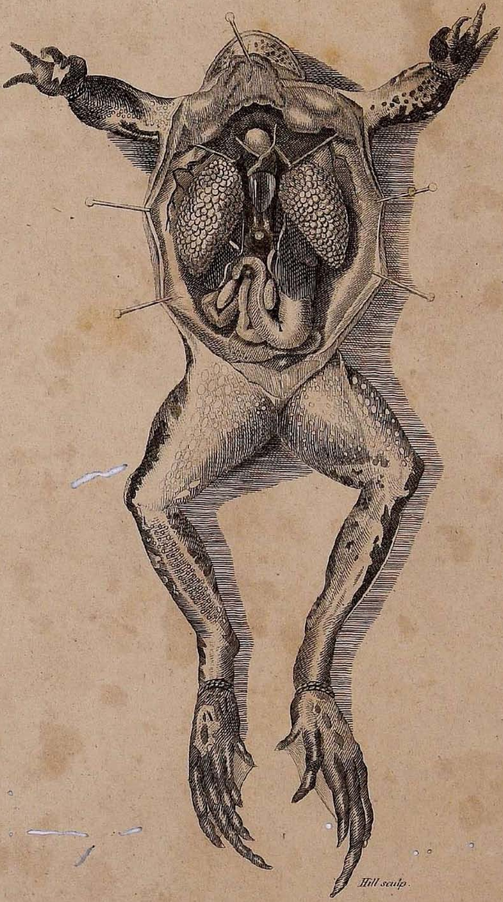
The Frog can hardly be said to arrive at its full size till the age of about five years, and is supposed to live at least twelve or fifteen years.

It is singular that the celebrated Lord Bacon seems not to have clearly understood the progress of Nature in the formation of the Frog, or its gradual change of figure from the tadpole to the complete animal; since, in his *Sylva Sylvarum*, or *Natural Historie*, he speaks, as an extraordinary and peculiar circumstance, of young frogs and toads having been sometimes observed with tails,

in such years as have been more than commonly pestilential or unhealthy; from whence he draws the conclusion, that the appearance of such tailed animals "argueth a great disposition to putrefaction in the soile and aire"!!!

The Frog is extremely tenacious of life, and, like other amphibia, will survive for a considerable space the loss of many of its organs. If confined entirely under water, it is still enabled to support its existence for several days, as appears by Sir Thomas Brown's experiment. "Because many affirm, and some deliver, that, in regard it hath lungs and breatheth, a Frog may be easily drowned, though the reason be probable, I find not the experiment answerable; for fastening one about a span under water, it lived almost six days." On the contrary, it cannot so well dispense with the want of water, and is unable to survive too long an exposure to a dry air and a hot sun. It is, therefore, particularly careful to secure a retreat where it may enjoy the benefit of shade and a sufficient supply of moisture. It delights, however, to bask occasionally, in a moderate sunshine, and is unable to support severe cold.

The figures on the annexed plate represent the animal in all its appearances, from the spawn to the completely formed Frog. The largest figure represents a Frog of about four years old; being considerably smaller than the animal when arrived at its fifth or sixth year. A plate representing a Frog in an opened state is also added, in order to shew the lungs and other viscera.



Hill sculp.

FROG,

*Opened to shew the Lungs & other viscera.*

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GREEN FROG.

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## GREEN FROG.

Rana Esculenta. *R. olivacea nigro maculata, lineis tribus dorsalibus flavescentibus, abdomine albido.*

Olive-coloured Frog, spotted with black, with three yellowish dorsal lines, and whitish abdomen.

Rana esculenta. *R. corpore angulato, dorso transverse gibbo, abdomine marginato.* *Lin. Syst. Nat.* p. 357.

Rana viridis aquatica. *Roes. Hist. Ran.* p. 53. t. 13, &c.

Edible Frog. *Penn. Brit. Zool.* 3. p. 13.

The Green Frog.

THIS species is the largest of the European Frogs, and is found plentifully in France, Italy, Germany, and many other parts of Europe, but is a rare animal in England. In its general appearance it extremely resembles the common frog, but is of larger size, and of an olive-green colour, distinctly and strongly marked on the upper parts of the body with moderately large and somewhat rounded black spots or patches: the limbs are elegantly marked or barred transversely with bands of the same colour; and from the tip of the nose down the whole length of the back run three distinct stripes of pale yellow, the middle one of which is slightly depressed; the two lateral ones strongly elevated. The under parts of the body and limbs are of a pale or whitish colour, slightly tinged with green, and variegated with brown spots, and markings. The head is rather larger and sharper in proportion than that of the common Frog; and the long deep-brown patch under each eye, which forms so constant and con-

spicuous a character in that animal, is much less distinct, and sometimes even entirely wanting. The proportion of the limbs is nearly the same as in the common frog, and the hind feet are very strongly palmated.

This species, according to the observations of Mr. Roesel, emerges from its winter quarters at a much later period than the common Frog; generally depositing its spawn in the month of June. Mr. Roesel, therefore, very properly observes, that in places where this animal is used as an article of food, it should not be taken till June; those which are brought to market before that period being either common frogs, or even toads. The male of this species, during the breeding season, is observed to protrude from each side of its head a large inflated globular vesicle, and croaks so loud as to be heard to a vast distance. Indeed in places where these animals assemble in multitudes, their croaking is so oppressive to those unaccustomed to the sound, as to prevent them from enjoying their accustomed rest. The globules of spawn in this species are smaller in proportion than in the common frog, and of a somewhat yellowish cast: the tadpoles are slower in arriving at their complete form; the fore legs scarcely appearing before October, and the animal in its perfect shape being rarely seen before the beginning of November, at which period the tail begins to decrease, and in about four days becomes entirely obliterated.

The Green Frog is a very voracious animal, and will occasionally seize on young birds of various

Hill sculp.

PEEPING FROG.

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kinds, mice, and even young ducklings which happen to stray too far from their parents; swallowing them whole, like the rest of its prey. It arrives at its full growth in about four years; begins to breed at the age of five years, and lives to about sixteen.

## PEEPING FROG.

Rana Pipiens. *R. olivacea, maculis ovatis nigris flavo marginatis.*

Olive-coloured Frog, with ovate black spots margined with yellow.

Water-Frog. *Catesb. Car.* 2. *p.* 70. *pl.* 70.

Rana pipiens. *R. viridis, ocellis plurimis fuscis annulo flavescente cinctis. Lin. Syst. Nat. Gmel. p.* 1052. *Schreb. Naturf.* 18. *p.* 182. *t.* 4.

Rana maculosa Africana amphibia. *Seb.* 2. *p.* 37. *t.* 37. *f.* 4.?

In its habit or general appearance this species seems much allied both to the common and the green frog, and more particularly to the latter animal, but is smaller; measuring only five or six inches from the nose to the tips of the hind feet. It is a native of North America, and was first described by Catesby, who informs us that its body and limbs are of a dusky green, spotted with black: from the eyes to the rump extend two yellow lines; and two white lines reach from each eye to the nose: the eyes are large and black, and are encircled by yellow irides. These frogs, says Catesby, are not seen on dry land, but frequent rivulets and ditches of water, and will leap to the distance of five or six yards. Since the time of

Catesby this species has been described by Kalm, and other travellers. It is said to indicate the approach of rain by its piping voice, during the spring and beginning of summer. The ears in the living animal have a bright gilded tinge, or metallic gloss. A Frog much allied to the above, and perhaps a variety, is described and figured by Seba, vol. 2. p. 37. t. 37. but is said to be a native of Africa.

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## BULL FROG.

Rana Catesbeiana. *R. fusco-olivacea maxima nigro maculata, auribus ocellatis, pedibus posticis palmatis.*

Very large olive-brown Frog, spotted with black, with large ocellated ear-spots, and palmated hind feet.

The Bull Frog. *Catesb. Carol. 2. p. 72. pl. 72.*

Rana ocellata ? ? ? *Lin. Syst. Nat. p. 356.*

This remarkable species is not uncommon in many parts of North America, where it is known by the name of the Bull Frog, its voice resembling the distant lowing of that animal. It grows to a very large size, the individual represented by Mr. Catesby, in his Natural History of Carolina, and which he assures us was taken from a small rather than a large specimen, seeming to measure about eighteen inches from the nose to the end of the hind feet. Its colour, on the upper parts, is a dusky olive, or brownish, somewhat irregularly marked with numerous deep-brown spots; while the under parts are of a pale or whitish cast, with a tincture of yellowish green, and marked with

BULL FROG.

Heath sculp.

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numerous spots, but much less vivid or distinct than those of the upper parts. The fore feet have only four toes, and are unwebbed, but the hind feet, which are large and long, have five toes, and are very widely webbed or palmated. The irides of the eyes are red, surrounded with a narrow border, or secondary iris, as it were, of yellow. The ears, or rather the external membranes of those organs, are large, round, of a brownish red colour, surrounded by a well-defined pale or yellowish white margin.

Mr. Catesby tells us that the Bull Frog is less numerous in North America than any other kind; that it frequents springs only, which in Virginia abound in the sides of every little hill, where by the continual running of the water a small pond or hole is usually made before the mouth of the spring, which is rarely without a pair of these frogs, which are usually seen sitting on the verge of the hole, and when surprised, with a long leap or two, enter the mouth of the spring, where they are secure. He adds, that it is the common belief of the people in Virginia that they keep the springs clean, and purify the water, and therefore the general prejudice is in their favour; though, on account of their being great devourers of young ducks and goslings, which they often swallow whole, they are sometimes destroyed.

It does not appear that Linnæus has distinctly described this species, unless we suppose him to have really intended it by his *Rana ocellata.* If this be the case, we must admit, that by some very

extraordinary inaccuracy, he has confounded two widely different species together, in which he appears to have been followed by the Count de Cepede. In the Gmelinian edition of the Systema Naturæ the trivial name of *ocellata* is retained.

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## ARGUS FROG.

Rana Ocellata. *R. pedibus pentadactylis fissis, digitis subtus tuberculatis, dorso fasciato, lateribus ocellatis.*

Frog with pentadactyle unwebbed feet, toes tuberculated beneath, back fasciated, and sides ocellated.

Rana Ocellata. *R. auribus ocellatis, pedibus muticis? Lin. Syst. Nat. p.* 356. *Mus. Ad. Fr.* 2. *p.* 39.

Rana maxima Virginiana, &c. *Seb.* 1. *p.* 119. *t.* 75. *fig.* 1.

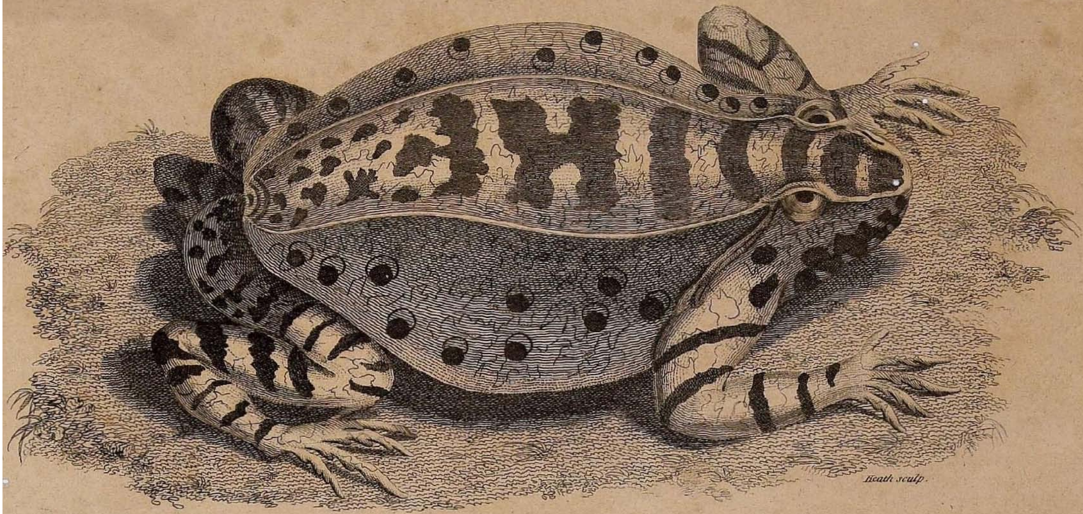
Rana pentadactyla. *R. pedibus omnibus fasciatis pentadactylis, corpore venuloso; maculis dorsalibus transversis, lateralibus ocellatis. Lin. Syst. Nat. Gmel. p.* 1052.

The present large and highly elegant species, which was first figured in the work of Seba, appears clearly, from the description given in the *Musæum Adolphi Friderici,* to be the real *Rana occellata* of Linnæus; though, from the extreme brevity of the specific character in the *Systema Naturæ,* accompanied by an erroneous reference to a figure in Catesby, most readers have supposed the Bull Frog of that author to have been the animal intended.

The Argus Frog is a native of several parts of North America, being found in Pensylvania, Carolina, &c. &c. residing, like most others, in moist situations, and in the neighbourhood of springs

34.

ARGUS FROG.



Heath sculp.

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and rivulets. It is one of the largest animals of the genus, equalling, if not exceeding, the Bull Frog in the size of its body, while the limbs are thicker and stouter in proportion. Its colour is a pale reddish brown, with two distinctly marked whitish elevated lines running down the middle of the back, at a considerable distance from each other; the intervening space being marked by several broad fasciæ of a reddish chesnut colour, while the sides are beautifully ornamented with several truly ocellated or eye-shaped spots of the same colour, each being half surrounded by an iris-like paler space or crescent. The limbs are elegantly banded with chesnut coloured stripes. The under parts are pale or whitish. The feet are unwebbed, and are all divided into five toes, each joint being furnished beneath with a kind of tubercle or process.

When we consider the wide difference in the form of the feet between this and the Bull Frog (in which the hind feet are perhaps more widely palmated than in any other animal of the genus), it appears altogether astonishing that the Count de Cepede, in his History of Oviparous Quadrupeds, should have considered them as the same species.

In the British Museum are preserved specimens of the Argus Frog, in which, though much faded by length of time, the pattern of the spots may still be pretty distinctly traced. In its general manners this animal is supposed to resemble the Bull Frog.

## LINEATED FROG.

Rana Virginica. *R. cinerea, rubro maculata, subtus flavescens, dorso quinquestriato quinquangulari. Lin. Syst. Nat. Gmel. p.* 1053.

Cinereous Frog, spotted with red; yellowish beneath; with angular back marked by five pale stripes.

Rana Virginiana maculis et lineis notata. *Seb.* 1. *p.* 120. *t.* 75. *f.* 4.

This, which is allied in shape and size to the common European Frog, is of a greenish colour above, and paler beneath; the back and limbs being variegated with dark brown marks or patches of different sizes. The upper part of the body is of a somewhat angular form, being marked longitudinally by five pale or whitish lines, three of which run from the nose down the back, and the other two are disposed on each side the body, reaching no farther than the legs. The feet are formed as in the common frog; the fore feet being tetradactylous; the hinder pentadactylous and webbed. It is a native of Virginia, and is figured and slightly described in the work of Seba.

## OVAL FROG.

Rana Ovalis. *R. subfusca, subtus flavescens, capite brevi rostrato cum corpore globoso confuso.*

Brownish Frog, yellowish beneath, with short rostrated head scarcely distinct from the globose body.

Rana ovalis. *Schneid. p.* 131.

Described by Mr. Schneider from a specimen in the Museum of the Duke of Brunswick. Size not mentioned. Colour pale brown, yellowish beneath: hind legs short, with unwebbed feet, and a callus at the base of the inner toe: the snout projects beyond the lower jaw, and forms the character of the species: other specimens seen by Mr. Schneider are said to have been somewhat spotted above, and inclining in some degree to a blueish cast.

## STUDDED FROG.

Rana Cyanophlyetis. *R. fusco-cœrulea, linea utrinque laterali tuberculata, abdomine albido fusco maculato.*

Brownish blue Frog, with a tuberculated line on each side; beneath whitish spotted with brown.

Rana Cyanophlyctis. *Schneid. Amph. p.* 137.

This is described by Mr. Schneider from specimens in the collection of Dr. Bloch. Its colour is a brownish blue above, and beneath white, thickly spotted with brown: the legs are banded with blackish-blue and white; and along the

whole length of the body, on each side, runs a row of blue tubercles or pustules, commencing from the eyes and meeting at the juncture of the hind legs: the upper jaw is beset with a row of longish, thick-set, conical teeth, resembling those of lizards: the hind feet are webbed, and furnished with a callus resembling a sixth toe. The size of the animal is not mentioned. It is a native of India.

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## SPINY-FOOTED FROG.

Rana Spinipes. *R. fusca, subtus cærulescens, lateribus gilvo punctatis, digitis anterioribus spinosis.*

Brown Frog, blueish beneath; with the sides speckled with ochre colour, and the toes of the fore-feet spiny.

Rana Australiaca. Australian Frog. *Naturalist's Miscellany, vol. 6. pl. 200.*

Rana Spinipes. *Schneid Amph. p.* 129. 139.

This was first described in the Naturalist's Miscellany; and so careful has Mr. Schneider been to preserve it from oblivion, that he has twice described it in his own work within the compass of a few pages. He is mistaken, however, in supposing it to exist in the British Museum; the figure having been etched from a drawing made in New Holland, its native country. Its size appears to be somewhat larger than that of the common European Frog, and its habit approaches rather to that of a toad, or a Natter-Jack, which latter it seems to resemble in its manner of walking,

viz. with the limbs elevated, or in the manner of the generality of quadrupeds. All the feet are unwebbed.

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## BLUE FROG.

Rana Cærulea. *R. cærulea, subtus griseo-punctata, pedibus tetradactylis, posterioribus palmatis.*

Blue Frog, speckled beneath with greyish; the feet divided into four toes; the hind feet webbed.

Blue Frog. *White's Journ. of Voy. to New South Wales, p.* 248. *pl. ib.*

The above is mentioned in Mr. White's Voyage to New South Wales, and is said to be of the size of a common frog. Nothing particular is known of its natural history. In habit and slenderness of limbs it seems allied to the tree frogs, but the toes are not orbiculated.

## VESPERTINE FROG.

Rana Vespertina. *R. macula inter oculos transversa, posterius bicruri aliisque oblique ab oculis ad nares, corpore supra cinereo maculis longitudinalibus subconfluentibus fuscis, viridi varianti-bus vario, subtus albido cinerascente inquinato. Lin. Syst. Nat. Gmel. p.* 1050. *Pall. it.* 1. *p.* 458.

Cinereous Frog, tuberculated above, with a transverse spot between the eyes, forked behind, and longitudinal subconfluent brown dorsal spots varying into green.

NATIVE of Siberia: about the size of a toad, but with the habit rather of a frog; but can scarcely be said to leap: head short; body covered with warts or papillæ.

## LAUGHING FROG.

Rana Ridibunda. *R. corpore fusco-maculato supra cinereo, linea dorsali flava vel subviridi, subtus albido glabro, clunibus fuscis lacteo maculatis. Lin. Syst. Nat. Gmel. p.* 1051. *Pall. it. p.* 458.

Cinereous Frog, with the body spotted with brown, and the thighs dusky, with milk-white spots.

VERY common, according to Dr. Pallas, about the rivers Volga and Ural, and about the Caspian sea: of very large size, weighing half a pound: has the habit of the common Frog, but is of a broader form: always keeps in the water; and in the evening exerts a voice much resembling a hoarse laugh.

### THIRSTY FROG.

Rana Sitibunda. *R. supra ex glauco cinerascens, maculis ex viridante nigricantibus varia, subtus sordide alba, plantis semipalmatis subheptadactylis. Lin. Syst. Nat. p.* 1051. *Pall. it.* 1. *p.* 458.

Glaucous grey Frog, variegated with blackish green spots; beneath whitish, with the hind feet semipalmated and subheptadactyle.

Native of desert places about the river Ural: conceals itself during the day: has the habit of a toad, but is larger: body warted; head short: two calli or spurious toes on the hind feet.

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### LEVERIAN FROG.

Rana Leveriana. *R. fusco-cærulea, subtus albida, supra linea utrinque alba alteraque abrupta, pedibus posterioribus palmatis.*

Dusky-blue Frog, whitish beneath, with palmated hind feet, and body marked above by two long and two short white stripes.

Habit of common Frog, but the body plumper and limbs shorter in proportion: colour above much resembling that of the R. bicolor, but rather deeper or more obscure: from behind each eye runs a white line or narrow stripe as far as the thighs; another shorter stripe runs from the nostrils over the edges of the upper lip as far as the fore legs: on the back of the head is a smallish trifurcated spot, the two upper divisions pointing forwards: under surface yellowish white, and

granulated; the granulations forming mottlings on the sides of the body: fore feet tetradactylous; the toes very slightly orbiculated at the tips: hind feet pentadactylous and pretty strongly palmated: shape of the head as in the common frog, and not like that of the bicolor: ears round and dusky. This species, though allied in some particulars to the bicolor and cyanophlyetis, seems yet to differ from both. Nothing is known relative to its history or native country.

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## FIRE FROG.

Rana Ignea. *R. olivaceo-fusca tuberculata, subtus aurantia cæruleo maculata.*

Olive-brown Frog; beneath orange coloured, spotted with blue.

Rana bombina. *R. corpore verrucoso, abdomine albido nigro maculato, plica gulari. Lin. Syst. Nat. p.* 355.

Rana abdomine fulvo. *Lin. Faun. Suec. ed.* 1. *p.* 94.

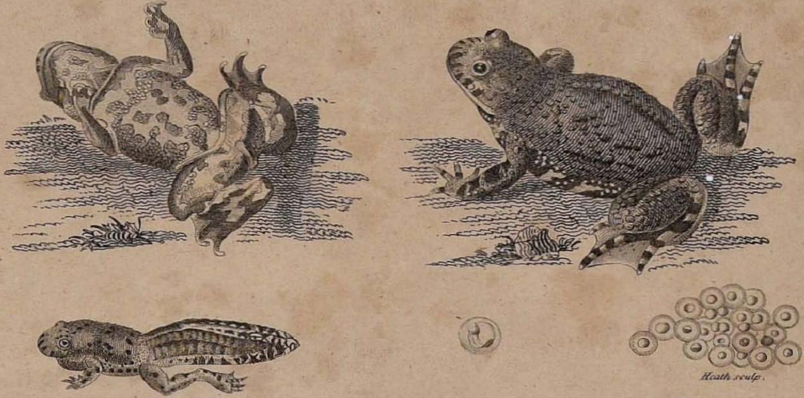
Bufo vulgo igneus dictus. *Roes. Hist. Ran. p.* 97. *t.* 22.

Rana Bombina. *R. abdomine aurantio cæsio-maculato, pupilla triquetra. Lin. Syst. Nat. Gmel. p.* 1048. *Blumenb. Naturg. p.* 260.

La Sonnante. *Cepede ov.* 1. *p.* 553. *pl.* 37.

Le couleur de Feu. *Ib. p.* 595.

This species I place in the present division of the genus, rather than among the toads, on account of its depositing its ova in clustered heaps; not in long strings of gluten, like those animals. It is the least of all the European Frogs, hardly



*Heath sculp.*

FIRE FROG.

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ever equalling even the tree frog in size, and is a native of Germany, Italy, and many other parts of Europe, but is not found in England. Its colour on the upper parts is a dull olive brown; the skin being marked with large and small tubercles; round the edges of the mouth is placed a row of blackish streaks or perpendicular spots. The under parts both of the body and limbs are orange-coloured, spotted or variegated with irregular markings of dull blue. It is from the colour of the under surface that this species has obtained its title of Bufo igneus, Fire Frog, &c. The colour, however, as in most others of the genus, is liable to vary considerably, being sometimes much less brilliant. This animal may be considered rather as an aquatic than terrestrial species; being rarely found on land, but chiefly inhabiting turbid stagnant waters, in which, in the month of June, it deposits its spawn, the ova being much larger in proportion than in most others of the genus. The tadpoles are hatched towards the end of June, and are of a pale yellowish-brown colour; and when young are often observed to hang from the surface of leaves, &c. by a glutinous thread proceeding from the small tube or sucker beneath the lower lip. They arrive at their full size towards the close of September, and at that period are remarkable for the fleshy or muscular appearance of the tail, which is stronger in proportion than in most other tadpoles. About the beginning of October they assume their complete or ultimate

form; and when the tail has so far decreased as to be still about a quarter of an inch in length, that remaining portion becomes entirely obliterated in the space of about twelve hours.

The Fire Frog is a lively, active animal; leaping and swimming with equal, or even superior celerity to the common Frog. When surprised on land, or unable to escape, it squats close to the ground; at the same time turning back its head and limbs in a singular manner; and if farther teized or irritated, evacuates from the hinder part of the thighs a kind of saponaceous frothy fluid, of no bad scent, but which in some circumstances has been found to excite a slight sensation of acrimony in the eyes and nostrils. This species is observed to breed at the age of three years, and may be supposed to live about ten; but this is not entirely ascertained.

The pupil of the eye in this animal is round in the shade, but in a full light triangular: the lobes or cancellated internal divisions of the lungs, are larger or fewer in proportion than in other frogs. Its voice, according to Roesel, is sharper or lighter than in other frogs; less disagreeable, and in some degree resembling a kind of laugh: according to some authors, however, it rather resembles the tone of a bell, or the note of a Cuckow; for which reason the animal has been called Rana bombina. The male only is vocal.

From the different descriptions of authors relative to the colour, voice, and other particulars,

has arisen much confusion, with respect to the species*.

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## SALINE FROG.

Rana Salsa. *R. olivaceo-fusca, subtus albida fusco maculata, digitis omnibus fissis.*

Olive-brown Frog, whitish beneath, with dusky variegations, and with all the toes unwebbed.

Bufo salsus. *Shrank. Naturg. Br. über. Oestreich, &c.* 1. *p.* 308.

This species appears to be much allied to the preceding, but differs not only in colour, but in having the hind feet webbed, which in the former are widely palmated. Its colour is olive brown above, and whitish beneath, with dusky variegations, and with the insides of the feet yellow. When first taken out of the water the brown colour has a blueish cast: the legs are fasciated with brown, and the back is beset with tubercles. It is an inhabitant of salt marshes in some parts of Germany.

* The wretched figure of this animal in the work of the Count de Cepede, like many others in that publication, must be considered as merely introduced for form's sake.

## PARADOXICAL FROG.

Rana Paradoxa. *R. femoribus posticis oblique striatis. Lin. Syst. Nat. p.* 356.

Yellowish olive-coloured Frog, variegated with rufous marks, and with the hind legs obliquely striated.

Paradoxical Frog. *Nat. Miscell. vol.* 9. *pl.* 350, 351.

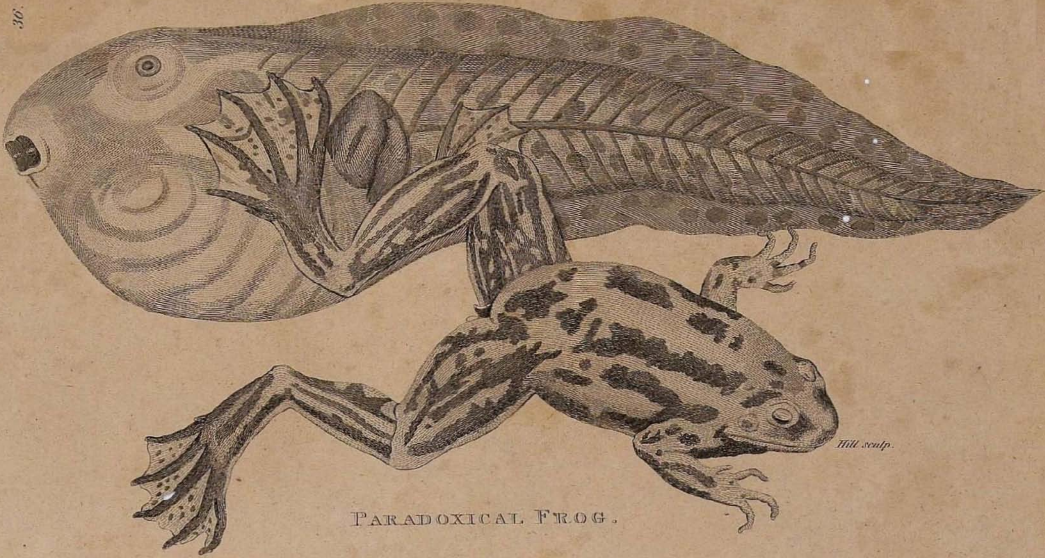
### *Larva, or Tadpole.*

*Lacerta cauda ancipiti, palmis tetradactylis fissis, plantis pentadactylis palmatis, abdomine ventricoso. Lin. Syst. Nat. ed.* 6. *p.* 36.

Rana piscis. *Lin. Mus. Ad. Frid.* 1. *p.* 49.
*Seb.* 1. *p.* 123. *t.* 78. *f.* 15—21.
*Mer. Sur. t.* 71. *f.* 1—5.

Frog Fish of Surinam. *Edw. Phil. Trans.* 51. *p.* 653. *pl.* 15.
*Edw. Mem. p.* 30. *pl.* 2.

This animal, which the plate represents in its natural size, from a very fine specimen in the British Museum, is a native of South America, and seems to be more particularly found in Surinam than in other parts. In its general form it very much resembles the Rana temporaria, or common European Frog; and is, when living, of a yellowish olive colour, spotted and variegated on the body and limbs with rufous or yellowish brown; the principal mark of distinction from others of the genus being the somewhat oblique longitudinal stripes on the hind legs: the fore feet have only four toes, and are unwebbed; but the hind feet have five, and are very deeply palmated to the very ends or tips of the toes; and near the thumb




PARADOXICAL FROG.

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or shortest toe is an oblong callus, resembling an additional or spurious toe. The upper jaw is beset with a row of small denticulations; and the male is, according to Mr. Schneider, furnished with a gular vesicle, as in some of the European species.

The tadpole of this Frog, from its very large size, the strong and muscular appearance of the tail, and the ambiguous aspect which it exhibits in the latter part of its progress toward its complete or ultimate form, has long continued to constitute, as it were, the paradox of European naturalists; who, however strong and well-grounded their suspicions might be relative to its real nature, and the mistake of most describers, were yet obliged, in some measure, to acquiesce in the general testimony of those who had seen it in its native waters, and who declared it to be at length transmuted, not into a frog, but a fish! and it was even added by some, that it afterwards reverted to its tadpole form again!! That it is really no other than a frog in its larva or tadpole state, will be evident to every one who considers its structure; and more especially, if it be collated with the tadpole even of some European Frogs; for instance, that of the *Rana alliacea*, which the reader will find represented in its natural size on a plate accompanying the description of that species. Like our European tadpoles, this animal, according to the more or less advanced state in which it is found, is furnished either with all the four legs, or with only the two hinder ones: it also sometimes happens that in the

largest sized of these tadpoles, exceeding perhaps the length of six or eight inches, the hind legs alone appear; while in those of far smaller size both the fore and hind legs are equally conspicuous. Specimens of these curious animals occur both in the British and Leverian Museums.

It will readily appear that the larva of this frog is larger in proportion to the complete animal than in any other species hitherto discovered. It may also be not improper to observe, that perhaps all the specimens of these very large tadpoles occuring in Museums, may not be those of the Rana Paradoxa in particular, but of some other American, African, or Asiatic Frogs, as the R. ocellata, marina, &c. &c.

Dr. Gmelin, in his edition of the Systema Naturæ, seems to suppose that the fleshy part of the tail in this larva still remains after the animal has acquired its complete form; but this is by no means the case; no vestige of that part being visible in the perfect Frog.

Hill sculp.

ZEBRA FROG.

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# *HYLÆ*,

OR

## *Frogs with rather slender bodies, long limbs, and the tips of the toes flat, orbicular, and dilated.*

### ZEBRA FROG.

Rana Zebra. *R. rufo-flavescens, fusco fasciata & maculata; cruribus fasciis geminatis, pedibus palmatis.*
Yellowish rufous Frog, spotted and fasciated with brown; with doubled fasciæ on the legs, and palmated feet.
Rana maxima. *R. pedibus omnibus palmatis & cum digitis fasciatis, corpore venuloso variegato: summo dorso oblique maculato. Lin. Syst. Nat. Gmel.* p. 1053. *Laur. Amph.* p. 32.
Rana Virginiana exquisitissima. *Seb.* 1. *p.* 115. *t.* 72. *f.* 3.
Rana boans. *Lin.?*

THIS appears to be by far the largest of all the Hylæ, or slender-bodied Frogs, and is, according to Seba, a native of Carolina and Virginia. Its colour is an elegant pale rufous brown, beautifully marked on the back and limbs, and even to the ends of the toes, with transverse chesnut-coloured bands, which on the limbs are double and much more numerous than on the back: from the corners of the mouth run two very narrow pale lines, as in the Argus Frog, separating, as it were, the region of the back from the other parts; the head and sides are irregularly marked with numerous small chesnut-coloured spots and veins: all the feet are webbed, and the tips of all the toes are orbicular, as in the rest of this parti-

cular tribe: the fore feet are tĕtradactylous, and the hind pentadactylous: the head is large in proportion, the eyes protuberant, and the mouth wide. The specimen figured by Seba measures about five inches from the nose to the end of the body.

VAR. ?

Rana Boans. *R. pallida, rufo marmorata, pedibus anterioribus subpalmatis, posterioribus palmatis.*

Pale Frog, marbled with rufous, with the fore feet subpalmated, the hind feet palmated.

Rana boans? *R. corpore lævi, subtus punctis contiguis, pedibus palmatis unguibus orbiculato-dilatatis. Lin. Syst. Nat. p.* 358.

Rana Surinamensis. *Seb.* 1. *p.* 114. *t.* 71. *fig.* 3? 4?

This appears to differ so slightly from the above, that it seems doubtful whether it should not be considered as a variety, rather than as specifically distinct. The size and general markings are similar, but the fore feet are not webbed; or at least not very distinctly. May it not constitute a sexual difference?

VAR. ?

Rana Venulosa. *R. pallida, fusco venoso-maculata, pedibus fissis.*

Pale Frog, veined and spotted with brown, with unwebbed feet.

Rana Virginiana altera. *Seb. Mus.* 1. *p.* 115. *t.* 72. *f.* 4.

This appears to be no other than a younger or less advanced specimen of the former animal; differing only in being much smaller, less regularly and beautifully marked, and having no apparent

webs to the feet. It is said by Seba to be a native of the same parts of North America as the former.

*Rana Squamigera!!!*

*Lin. Syst. Nat. Gmel. p.* 1055. *Walbaum Schrift. der Berl. Ges.* 5. *p.* 223.

The laborious description of this supposed species, given by Mr. Walbaum in the work above referred to, is a most curious instance of one of those learned errors which sometimes creep into the writings of celebrated naturalists; the whole, according to Mr. Schneider, having originated from the accidental adhesion of a strip of skin from some serpent or lizard, preserved in the same bottle, to the back of the frog.

"Vix credibile videbitur, quod tamen liquido veluti juratus ex accurata ejusdem exempli inspectione ad Blochium meum transmissi affirmare audeo, ranam squamigeram a Wallbaumio operose descriptam nihil aliud esse, nisi ranam boantem Linnæi, cui cum serpentibus aut lacertis permixtæ, in liquore spirituoso lacinia exuviarum serpentinarum et quidem inversa se forte applicuerat. Iuvabit data occasione recordari chordæ ovis bufonis refertæ a Gmelino juniore in tertio Itinerarii volumine pro tæniæ specie pictæ!"—*Schneid. Hist. Amph. fasc.* 1. *p.* 168.

## BLUE-AND-YELLOW FROG.

Rana Bicolor. *R. supra cærulea, subtus ochracea, pedibus fissis, digitis orbiculato-dilatatis.*

Blue Frog, ochre-coloured beneath, with unwebbed feet, and flattened orbicular toes.

Rana bicolor. *R. supra cærulea, subtus ochracea. Lin. Syst. Nat. Gmel. p.* 1052. *Boddaert Monogr.* 1772.

Blue and yellow Frog. *Naturalist's Miscellany, vol.* 10. *pl.* 367.

This is a moderately large species; the body measuring rather more than four inches in length. The whole upper surface, both of body and limbs, is of an elegant blue colour: the under parts are of a pale orange or rather ochre colour; and along the sides are disposed several oblong and round, slightly convex, glandular white spots or pustules: the head is large; the mouth wide; and the tip of the nose truncated or abruptly terminated: the fore feet have four and the hind feet five toes, all terminated by a large orbicular tip; and beneath every joint of the toes is a process or tubercle. Different specimens appear to vary somewhat in their colours, the blue being more intense, and the orange-colour of the lower parts deeper; the limbs are also sometimes tinged with purplish bands or shades: the lower part of the abdomen is marked with numerous whitish round granules.

The female has more of the violet cast on the upper parts than the male, and the whitish marks on the side, &c. are more conspicuous.

This elegant species is supposed to be a native of Surinam.

It is surprising that the Count de Cepede should consider it as a variety of the European Tree-Frog.

## WHITE-LEAF FROG.

Rana Leucophyllata. *R. rufa, supra maculis niveis polymorphis variata.*

Rufous Frog, variegated above with differently shaped snow-white spots.

Rana leucophyllata. *Schneid. Amph. p.* 168.

This is described by Mr. Beyreis, in the Transactions of the Berlin Academy, vol. 4. p. 178. Its colour is rufous above, variegated both on the body and limbs with milk-white spots, which in different specimens are observed to vary very much, both in number, form, and disposition. All the toes of the fore feet are slightly webbed at the base. It is a native of America.

## FOUR-LINED FROG.

Rana Quadrilineata. *R. cærulea, linea utrinque laterali gemina flava.*

Blue Frog, with a double longitudinal yellow line on each side the body.

R. Quadrilineata. *Schneid. Amph. p.* 169.

Described by Mr. Schneider, from a drawing communicated by Dr. Bloch. Bears a resemblance to the *leucophyllata;* is of a blue colour above,

with a double yellow line along each side of the body, from the eyes to the vent.

VAR.?

Mr. Schneider mentions what seems to be a variety of a liver-colour, and thickly scattered over with small granules: two white lines on the sides: hind feet webbed.

## CHESNUT FROG.

Rana Castanea. *R. castanea granulata, subtus albida, linea utrinque laterali alba.*

Chesnut-coloured granulated Frog, whitish beneath, with a white line on each side the body.

Rana lineata. *Schneid. Amph. p.* 138.

R. fusca. *Ib. p.* 130.

This is twice, perhaps three times, described by Mr. Schneider, viz. first, under the name of *fusca*, and, again, under that of *lineata*. It also seems very doubtful whether the liver-coloured variety of the preceding species may not be the same animal. The size is not mentioned: the colour is rufous brown, with a white line running from each nostril across the eye-lids, and along each side of the body to the hind legs: the whole upper surface, both of body and limbs, scattered over with very minute warts or tubercles: colour of the belly whitish, with small clear white spots: on each shoulder a large, long, white spot: fore arms, hind

legs and thighs, barred transversely with white: all the feet unwebbed, with rounded toes, and all the joints tuberculated or processed beneath. Supposed to be a native of Surinam.

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## FASCIATED FROG.

Rana Fasciata. *R. rufescens, albido transversim fasciata.*
Rufescent Frog, with whitish transverse bands.
R. fasciata. *Schneid. Amph. p.* 172.

Of a pale rufous colour; the head, body, and upper parts of the limbs, marked with pale transverse bands: hind feet webbed as far as the first joint: all the toes processed beneath: belly and under parts of the thighs much granulated: eyes blue, with a silvery lustre: outside of the arms and legs blackish brown. In the collection of the Duke of Brunswick.

## TREE FROG.

Rana Arborea. *R. viridis, subtus albida, linea laterali nigricante, abdomine granulato, pedibus fissis.*

Green Frog, whitish beneath, with blackish lateral line, granulated abdomen, and unwebbed feet.

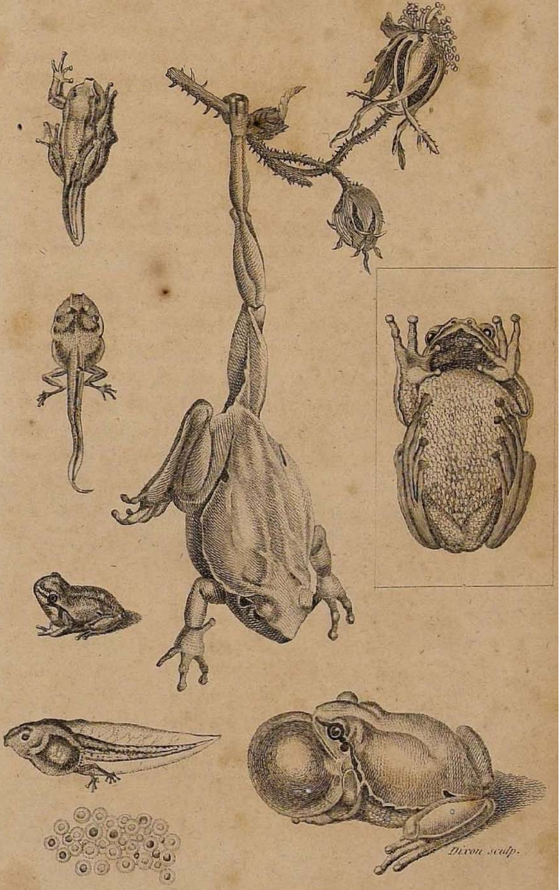
Rana arborea. *R. corpore lævi, subtus punctis contiguis tuberculato, pedibus fissis, unguibus orbiculato-dilatatis. Lin. Syst. Nat. p.* 357.

Rana arborea. *Roes. Hist. Ran. p.* 37. *pl.* 9, *&c.*

The Tree Frog.

In the beauty of its colours, as well as in the elegance of its form, and agility of its movements, the Tree Frog exceeds every other European species. It is a native of France, Germany, Italy, and many other European regions, but is not found in the British islands. Its principal residence, during the summer months, is on the upper parts of trees, where it wanders among the foliage in quest of insects, which it catches with extreme celerity, stealing softly toward its prey in the manner of a cat towards a mouse, and when at the proper distance, seizing it with a sudden spring, frequently of more than a foot in height. It often suspends itself by its feet, or abdomen, to the under parts of the leaves, thus continuing concealed beneath their shade. Its size is smaller than any other European frog, except the Fire Frog. Its colour, on the upper parts, is green, more or less bright in different individuals: the abdomen is whitish, and marked by numerous granules: the under surface of the limbs is red-

TREE FROG.



Dixon sculp.

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dish, and the body is marked on each side by a longitudinal blackish or violet coloured streak, separating the green of the upper parts, from the white colour of the lower: the inferior edge of this dark lateral stripe is tinged with yellow. The body is smooth above, and moderately short or plump: the hind legs are very long and slender: the fore feet have four and the hind feet five toes, all of which terminate in rounded, flat, and dilated tips, the under surface of which, being soft and glutinous, enables the animal to hang with perfect security from the leaves of trees, &c. The skin of the abdomen is also admirably calculated by nature for this peculiar power of adhesion, being covered with small glandular granules in such a manner as to fasten closely even to the most polished surface: and the animal can adhere at pleasure to that of glass, in whatever position or inclination it be placed, by merely pressing itself against it.

Though the Tree Frog inhabits the woods during the summer months, yet on the approach of winter it retires to the waters, and there submerging itself in the soft mud, or concealing itself beneath the banks, remains in a state of torpidity, and again emerges in the spring, at which period it deposits its spawn in the waters, like the rest of this genus. The male at this period inflates its throat in a surprising manner, and exerts a very loud and sharp croak, which may be heard to a vast distance. The spawn is deposited about the end of April, in small clustered masses; the inclosed globules or embryos being of a pale

yellowish brown colour. The tadpoles become perfect Frogs, by the total decay of the tail, about the beginning of August; and soon begin to ascend the neighbouring trees, where they continue to reside during the remainder of the warm season; as do likewise the parent animals, after the breeding season is past. During their residence among the trees they are observed to be particularly noisy on the approach of rain; so that they may be considered, in some measure, as a kind of living barometers; more especially the males, which, if kept in glasses, and supplied with proper food, will afford an infallible presage of the changes of weather. In the German *Ephemerides Naturæ Curiosorum* we meet with an account of one which was kept in this manner for the space of seven years. It does not appear that the natural residence of this frog in the waters, during the winter, and in spring, was observed before the time of Roesel; and it is remarkable that Klein, in his objections to the Linnæan arrangement of the Amphibia, appears to imagine that the Tree Frog never inhabits the water.

MERIAN FROG.

Barnfield sculp.

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## MERIAN FROG.

Rana Meriana. *R. subflavescens fusco variegata, vesicis auricularibus subconicis.*

Yellowish-green Frog, variegated with brown, with subconical auricular vesicles.

Rana Americana vesicaria. *Seb. Mus.* 1. *t.* 71. *f.* 1, 2, 3?

Eared Frog. *Merian Surin. pl.* 56.

Rana arborea maxima. *Sloan Jam.*

THIS, which in the Gmelinian edition of the Systema Naturæ is placed among the supposed varieties of the Rana arborea, or common Tree Frog, must, if any reliance be placed on the figures and descriptions of Madam Merian and Seba, be a very distinct species. Indeed the very circumstance of its having the hind feet webbed, would alone be sufficient, if other circumstances were wanting, to prove it entirely distinct. It appears to be nearly thrice the size of the Rana arborea, and is of a greenish brown above, variegated by several differently formed spots, veins, and patches of yellowish green; and on each side of the neck is a very remarkable protuberance, resembling an obtusely conical, inflated pouch. The figures of Seba and Merian, though slightly differing as to the minuter circumstances of the exact distribution of spots and colours, agree in this particular; and the description given by Sloane, in his History of Jamaica, expressly mentions this feature. This animal is sometimes found on trees, and sometimes in the water; according to the different periods of its

growth, &c. &c. Madam Merian's figure being taken, as she informs us, from the living animal, is here introduced in preference to those of Seba. It is observable, however, that the hind feet in this figure appear but slightly palmated; whereas in Seba's representation, they are strongly webbed. Madam Merian's figure is accompanied by the larvæ or tadpoles in their different stages of growth. She informs us, that the frogs are found in stagnant waters; that they have ears in their heads, and knobs or balls on their feet, which Nature has given them in order to enable them to pass with facility over the morassy places they inhabit.

## ORANGE FROG.

Rana Aurantia. *R. aurantia, corpore artubusque gracillimis.*
Orange-coloured Frog, with very slender body and limbs.
Rana Brasiliensis gracilis. *Seb.* 1. *t.* 73. *f.* 3.

THIS species is a native of South America, and is of a smaller size than the European Tree Frog, slender-bodied, long-limbed, and entirely of a reddish orange colour. Like the rest of this division, it inhabits trees.

## TINGING FROG.

Rana Tinctoria. *R. rufa, corpore albo fasciato.*
Reddish Frog, with the body fasciated with white.
La Rouge. *Cepede ovip. p. 566. pl. 39.*

Smaller than the European Tree Frog. Native of South America. Of a red or very bright ferruginous colour above, marked with a pair of longitudinal white stripes, which in the younger specimens are often crossed by a transverse stripe. It is a species which varies considerably in the disposition of its colours. It inhabits trees, and is said to be sometimes used by the South American Indians for the purpose of introducing new colours on green parrots, which, while yet young, are plucked on particular parts, and afterwards well rubbed or anointed on the bare spots with the blood of this Frog; in consequence of which, as is pretended, the new feathers on those parts spring of a red or orange-colour instead of green; thus varying the bird with parti-coloured plumage. The specimen of this Frog described and figured by Cepede had the stripes on the body rather yellow than white; so that it probably varies in the colour as well as the disposition of its marks.

## WHITE FROG.

Rana Alba. *R. tota alba.*
Frog entirely of a white colour.
Hyla lactea. *Laurenti Specim. Med. p.* 34.
La Couleur de Lait. *Cepede ovip.* 1. p. 561.

This small species is a native of the warmer parts of North America, where, like others of this tribe, it inhabits woods. It is entirely of a white colour, with a few spots or patches on the upper parts of a brighter or clearer white than the ground-colour. It is said sometimes to vary; the ground-colour having a slight plumbeous or cinereous cast.

## BILINEATED FROG.

Rana Bilineata. *R. viridis, linea utrinque longitudinali flava.*
Green Frog, with a strait yellow line on each side the body.
Tree Frog. *Catesb. Car.* 2. *p.* 71. *pl.* 71.

This is figured by Catesby, and has generally been considered as, at most, a variety of the common or European Tree Frog, from which it scarce seems to differ, except in having the yellow line on each side the body somewhat straiter, or without those undulations which take place in the former animal. It inhabits woods, and is extremely common in the warm and temperate parts of North America.

The following somewhat doubtful or not well-determined species are mentioned by Mr. Schneider, in his publication on the Amphibia.

PUNCTATED FROG. *Rana Punctata.*

COLOUR whitish grey, with small, irregular, snow-white specks on the head and back, and a snow-white band from the eyes to the hind legs: gape running beyond the eyes: abdomen and thighs beneath thickly beset with calli or papillæ: body very thin near the thighs. Mr. Schneider speaks of a drawing of this species, which represented it of a brown colour, instead of grey; so that the colour of the first described specimen might, perhaps, have been changed by being preserved in spirits.

BLACK-STRIPED FROG. *Rana Melanorabdata.*

AMONG some drawings executed in Brasil by the command of Prince Maurice of Nassau, preserved in the Royal Library at Berlin, this species occurs, but unaccompanied by either name or description. The head and back are green, with transverse black bars. Perhaps, says Mr. Schneider, it may be the same with a Frog described by Marcgrave, under the name of Rana arborea mediocris magnitudinis, tota ex flavo albicans superius, at inferius per totum lutei coloris: crura postica medietate inferiore etiam lutei coloris, sed transversim lineis nigris variegata, ut et latera ventris.

Among some drawings by Madam Merian, in

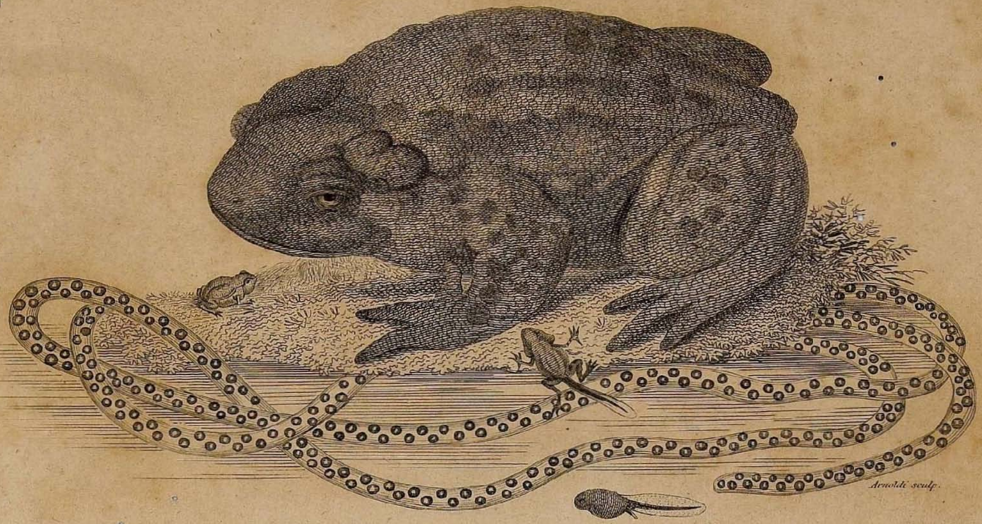
the British Museum, is a Frog which seems much allied to the above. Its size is that of a small or half-grown common frog, and its colour a bright green above, and pale or whitish-brown beneath; the sides of the body and insides of the limbs, bright yellow, beautifully marked with pretty numerous transverse, jet-black streaks and patches; each of the thighs having a pale line running down the middle of the inner part: the fore feet have four, and the hind five toes, all unwebbed, and without claws, except the two exterior toes of each hind foot, which are represented with sharpish curved claws.

# TOADS.

## COMMON TOAD.

Rana Bufo. *R. fusca, tuberculis rufescentibus, subtus pallida.*
Brown Toad, with rufous-brown tubercles; pale beneath.
*Rana corpore ventricoso verrucoso lurido fuscoque. Lin. Syst. Nat. p.* 354.
*Bufo terrestris, dorso tuberculis exasperato, oculis rubris. Roes. Hist. Ran. p.* 85. *t.* 20.
Bufo s. Rubeta. *Raj. Quadr.* 252.

Of all the European Toads this seems to be the most universally known; at least, in its complete or perfect form. It is found in gardens, woods, and fields, and frequently makes its way into cellars, or any obscure recesses in which it may occasionally conceal itself, and where it may find a supply of food, or a security from too great

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a degree of cold. In the early part of spring, like others of this genus, it retires to the waters, where it continues during the breeding season, and deposits its ova or spawn in the form of double necklace-like chains or strings of beautifully transparent gluten, and of the length of three or four feet, in each of which are disposed the ova in a continued double series throughout the whole length, having the appearance of so many small jet-black globules or beads; being in reality no other than the tadpoles or larvæ convoluted into a globular form, and waiting for the period of their evolution or hatching, which takes place in the space of about fourteen or fifteen days, when they break from the surrounding gluten, and, like the tadpoles of frogs, swim about in the water, and are nourished by various animalcules, gluten, leaves of water-plants, &c. &c. till, having arrived at their full growth, the legs are formed, the tail gradually becomes obliterated, and the animals leave the water, and betake themselves to the surface of the ground. This generally happens early in the autumn, at which period it is not uncommon to find such numbers of the young animals in some particular places, that their appearance has frequently given rise to the vulgar idea of their having being showered from the clouds.

The Toad is an animal too well known to require any very particular description of its form; and the figure accompanying this article will perhaps be more impressive than any verbal de-

tail. It may be necessary to observe that it is always covered by tubercles, or elevations on the skin, of larger or smaller size in different individuals, and that the general colour of the animal is an obscure brown above, much paler and irregularly spotted beneath. The Toad, however, is occasionally found of an olive cast, with darker variegations; and in some specimens, more especially in the earlier part of summer, the shoulders and limbs are marked with reddish spots, while a tinge of yellow often pervades the under parts both of the limbs and body.

The Toad arrives at a considerable age; its general term of life being supposed to extend to fifteen, or even twenty years; and Mr. Pennant, in his British Zoology, gives us a curious account, communicated by a Mr. Arscott, of Tehott, in Devonshire, of a Toad's having lived, in a kind of domestic state, for the space of more than forty years, and of having been, in a great degree, tamed, or reclaimed from its natural shyness or desire of concealment; since it would always regularly come out of its hole at the approach of its master, &c. in order to be fed. It grew to a very large size, and was considered as so singular a curiosity, that even ladies, laying aside their usual aversion and prejudices, requested to see the favourite Toad. It was, therefore, often brought to table, and fed with various insects, which it seized with great celerity, and without seeming to be embarrassed by the presence of company. This extraordinary animal generally re-

sided in a hole beneath the steps of the house door, fronting the garden; and might probably have survived many years longer, had it not been severely wounded by a raven, which seized it before it could take refuge in its hole, and notwithstanding it was liberated from its captor, it never again enjoyed its usual health, though it continued to live above a year after the accident happened.

The Toad was formerly supposed to be a great enemy to the Spider; or rather the Spider to the Toad. On this subject a tale is told by Erasmus, so completely absurd, so curiously ridiculous, that it may well serve as a standard proof of the general ignorance which prevailed at that less enlightened period.

"Monachus quidam, &c. &c." *Erasm. de Amicitia.*

The tale is thus translated by Topsel:

"There was a Monk, who had in his chamber divers bundles of green rushes, wherewithal he strowed his chamber at his pleasure: it happened on a day after dinner, that he fell asleep upon one of those bundles of rushes, with his face upward, and while he there slept, a great Toad came and sate upon his lips, bestriding him in such a manner as his whole mouth was covered. Now when his fellows saw it they were at their wit's end*, for to pull away the Toad was an unavoidable death, but

* And that, seemingly, *no very long tether!* to use an expression of the facetious Dr. Baynard.

to suffer her to stand still upon his mouth was a thing more cruel than death: and therefore one of them espying a spider's web in the window, wherein was a great spyder, he did advise that the Monk should be carried to that window, and laid with his face upward right underneath the spyder's web, which was presently accomplished. And assoon as the Spyder saw her adversary the Toad, she presently wove her thread, and descended down upon the Toad, at the first meeting whereof the Spyder wounded the Toad, so that it swelled, and at the second meeting it swelled more, but at the third time the Spyder kild the Toad, and so became grateful to her Host which did nourish her in his Chamber."

"The antipathy between a Toad and a Spider," says Sir Thomas Brown, "and that they poisonously destroy each other, is very famous, and solemn stories have been written of their combats, wherein most commonly the victory is given unto the Spider. Of what Toads and Spiders it is to be understood would be considered; for the *Phalangium* and deadly Spiders are different from those we generally behold in *England.* However the verity hereof, as also of many others, we cannot but desire; for hereby we might be surely provided of proper antidotes in cases which require them; but what we have observed herein, we cannot in reason conceal; who having in a glass included a toad with several spiders, we beheld the spiders without resistance to sit upon his head, and pass over all his body, which at last, upon

advantage, he swallowed down, and that in a few hours, to the number of seven. And in like manner will Toads also serve bees, and are accounted enemies unto their hives."

From the experiments of Laurenti, it appears that small lizards, on biting the common Toad, were for some time disordered and paralytic, and even appeared to be dead, but in some hours were completely recovered.

It is also observed, that dogs, on seizing a toad, and carrying it for some little time in their mouth, will appear to be affected with a very slight swelling of the lips, accompanied by an increased evacuation of saliva; the mere effect of the slightly acrimonious fluid which the toad on irritation exsudes from its skin, and which seems, in this country at least, to produce no dangerous symptoms in such animals as happen to taste or swallow it. The limpid fluid also, which this animal suddenly discharges when disturbed, is a mere watry liquor, perfectly free from any acrimonious or noxious qualities, and appearing to be no other than the contents of a peculiar reservoir, common to this tribe, destined for some purpose in the economy of the animals which does not yet appear to be clearly understood. The common Toad may therefore be pronounced innoxious, or perfectly free from any poisonous properties, at least with respect to any of the larger animals; and the innumerable tales recited by the older writers, of its supposed venom, appear to be either gross exaggerations, or else to have related to the effects of

some other species mistaken for the common Toad; it being certain that some of this genus exsude from their skin a highly acrimonious fluid.

The Toad is, however, looked upon with great aversion by the major part of mankind, and it must be confessed, that its appearance is not captivating: yet the eyes are remarkably beautiful; being surrounded by a reddish gold-coloured iris, the pupil, when in a state of contraction, appearing transverse.

It might seem unpardonable to conclude the history of this animal without mentioning the very extraordinary circumstance of its having been occasionally discovered enclosed, or imbedded, without any visible outlet, or even any passage for air, in the substance of wood, and even in that of stone or blocks of marble. For my own part, I have no hesitation in avowing a very high degree of scepticism as to these supposed facts, and in expressing my suspicions that proper attention, in such cases, was not paid to the real situation of the animal. That a Toad may have occasionally latibulized in some part of a tree, and have been in some degree overtaken or enclosed by the growth of the wood, so as to be obliged to continue in that situation, without being able to effect its escape, may perhaps be granted: but it would probably continue to live so long only as there remained a passage for air, and for the ingress of insects, &c. on which it might occasionally feed; but that it should be completely blocked up in any kind of stone or marble, without either food or air, appears

entirely incredible, and the general run of such accounts must be received with a great many grains of allowance for the natural love of the marvellous, the surprise excited by the sudden appearance of the animal in an unsuspected place, and the consequent neglect of minute attention at the moment, to the surrounding parts of the spot where it was discovered *.

* On this subject a curious experiment was made by Mons. Herrissant of the French Academy, in consequence of an assertion, that in the year 1771, on pulling down a wall at a seat belonging to the Duke of Orleans, and which had been built forty years, a living toad had been found in it; its hind feet being confined or imbedded in the mortar. Mr. Herrissant, therefore, in the presence of the Academy, inclosed three toads in as many boxes, which were immediately covered with a thick coat of plaister or mortar, and kept in the apartments of the Academy. On opening these boxes eighteen months afterwards, two of the toads were found still living: these were immediately reinclosed; but on being again opened some months after, were found dead. These experiments are, perhaps, not very conclusive; and only appear to prove what was before well known, viz. that the Toad, like many other Amphibia, can support a long abstinence, and requires but a small quantity of air: but in the accounts generally given of toads discovered in stones, wood, &c. the animals are said to have been completely impacted or imbedded, and without any space for air.

## ALLIACEOUS TOAD.

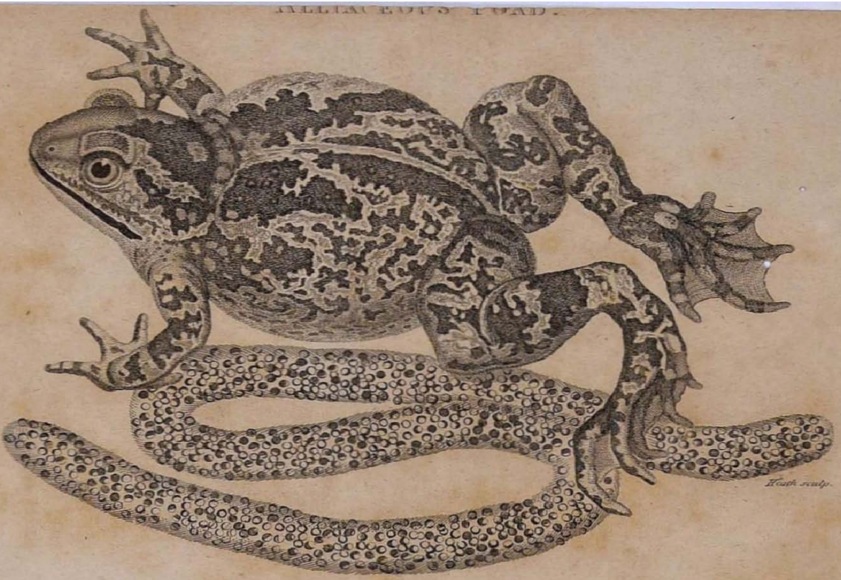
Rana Alliacea. *R. pallida, fusco marmorata, linea dorsali albida, pupillis perpendicularibus.*

Pale-grey Toad, marbled with brown, with a whitish dorsal line, and perpendicular pupils.

*Bufo aquaticus, allium redolens, maculis fuscis.* *Roes. Hist. Ran. p.* 69. *t.* 17, 18.

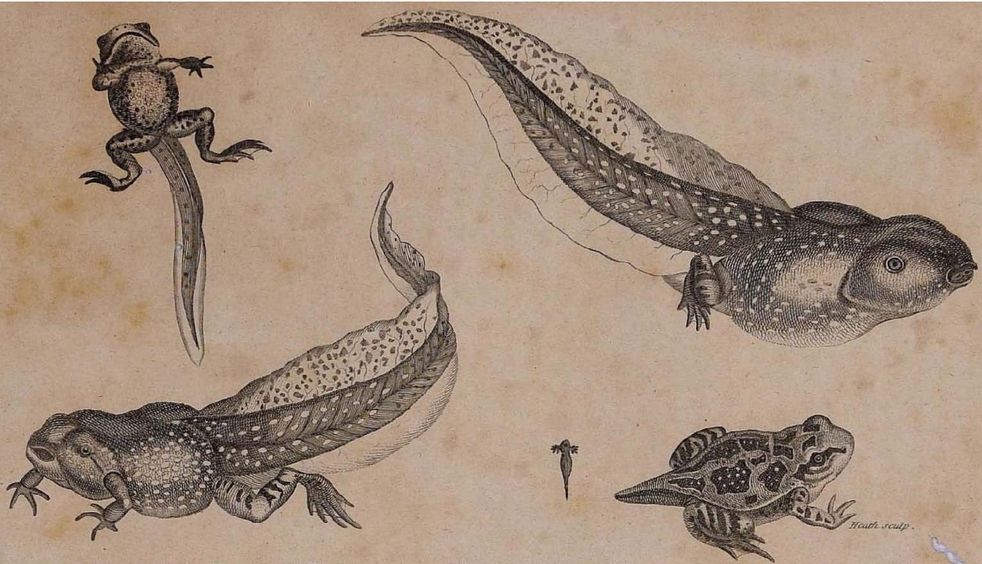
This species appears to have been first described by the incomparable Roesel, who found it in the neighbourhood of Nurenberg. In its general form it much resembles the common toad, but the head is rather longer in proportion. The whole animal is also nearly smooth, or almost void of those protuberances with which the skin of the former is marked. Its colour on the upper parts is a brownish grey, deeper or lighter in different individuals, and marbled with variously-sized spots or patches of deep brown, which on the sides are so disposed as to form a kind of reticular appearance; and in some specimens a few small spots of red or orange colour are dispersed over the shoulders and sides. The under parts are of a pale grey or whitish colour. The eyes are remarkable for having the pupil, when contracted, of a perpendicular form, as in the eyes of cats, and not horizontal, as in others of this genus. The spawn, which in the common toad is deposited in the form of double chains or strings of gluten, consists, in this species, of a single string, of considerable thickness, in which the ova are extremely numerous, and

# ALLIACEOUS TOAD.



Heath sculp.

180[illegible] Jan.y 1 London Publish'd by G Kearsley Fleet Street.



Heath sculp.

TADPOLES *of* ALLIACEOUS TOAD.

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disposed in a confluent manner through the whole length of the spawn, instead of being placed in two rows, as in the common species. This string of spawn sometimes equals almost two feet in length, being purposely shortened in the annexed engraving, in order to bring it within the compass of the plate.

Another remarkable character in this animal, and which gives rise to its name, is, that it diffuses, on being disturbed, an extremely strong odour, resembling that of garlick or onions, and which has the same effect on the eyes of those who examine and handle it; and sometimes a smell resembling that of the smoke of gunpowder seems to be combined with the former.

The tadpole or larva of this species arrives at so large a size, before it obtains its complete form, that, according to Roesel, it is considered by the country people in the neighbourhood where it is found as a kind of fish, and is eaten accordingly. It also serves as a good illustration of the long-continued error in natural history, relative to the South American species of Frog, called *Rana Paradoxa*, the tadpole of which, as the reader has already seen under that article, is larger in appearance than the complete animal, and has, in consequence of its size, been considered as a kind of fish, and described in many works on natural history under the name of the Frog-Fish of Surinam. The tadpole of the present species, in a similar manner, exceeds the size of the young frog in its complete state; nor is this circumstance peculiar

to these frogs alone, but seems, in a greater or less degree, to run through the whole genus; the soft, pulpy, and dilated form of the full-grown tadpole generally appearing larger than that of the newly-formed frog. These tadpoles are extremely voracious, and if kept in glasses of water, and fed with lettuce leaves and other vegetables, may be heard while in the act of eating, to the distance of several feet.

This species seems to have been in a great degree unknown before the time of Roesel. It is an inhabitant of the waters, and but rarely appears on land, which is one principal cause of its having been so little attended to. The common Toad, on the contrary, is rarely found in the water, except during the breeding season, when it frequents stagnant waters in order to deposit its ova. The Alliaceous Toad is also of a much more lively and active nature; its motion being sometimes rather a kind of leaping than crawling pace; and on the hind feet is a sort of spurious claw or horny callus, situated beneath the heel, and which is not to be found in the common Toad.

MEPHITIC TOAD.

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## MEPHITIC TOAD.

Rana Mephitica. *R. olivacea, fusco maculata, verrucis subrubentibus, linea dorsali sulphurea.*
Olive Toad, spotted with brown, with reddish warts, and sulphur-coloured dorsal line.
*Bufo terrestris foetidus.* *Roes. Hist. Ran. p.* 106. *t.* 24. *f.* 1.
Rana Rubeta ?? *Lin. Syst. Nat. p.* 37.

This species extremely resembles the common Toad in its general appearance, but is somewhat smaller, and is of an olive colour above, and pale grey beneath: the skin, all over the upper parts, is very distinctly tuberculated, and is marked by a pale sulphur-coloured line or narrow band, running down the whole length of the back: the sides are strongly tinged with yellowish red, in the form of an undulated fascia, beneath which are some irregular dark spots: the outsides of the limbs are also marked irregularly with dusky or blackish-brown spots: the eyes are of a glaucous green colour, slightly tinged with red: the body and limbs are very short and thick, and the fore feet are furnished beneath with a pair of bony tubercles or processes, by the help of which, as well as by pressing the body close to any substance, so as to exclude the air, this animal is enabled to climb to a considerable height up the sides of walls, &c. which it often does, in order to discover a convenient place of retirement. The hind feet are perfectly void of any webbed appearance; whereas those of the common Toad are pretty

deeply palmated. In its pace it differs from the rest of the toad tribe; running, nearly in the manner of a mouse, with the body and legs somewhat raised. It is chiefly a nocturnal animal; lying hid by day in the cavities of walls, rocks, &c. &c. The male and female perfectly resemble each other. They breed in June, resorting, at that time, to the waters, to deposit their ova, which are excluded in double rows in a pair of long strings of gluten, in the same manner as the common Toad; and so speedy is the evolution of the ova, that the tadpoles liberate themselves from the spawn in the space of five or six days. This happens about the middle of June; and about the end of August the hind legs appear, which, in a certain space, are succeeded by the fore legs; and by September and October the animals appear in their complete form.

Roesel informs us, that this species is known in some parts of Germany by the name of *Roerhling*, or Reed-Frog, from its frequenting in spring time such places as are overgrown with reeds, where it utters a strong and singular note or croak. When handled or teized, it diffuses an intolerable odour, resembling that of the smoke of gunpowder, but stronger: this proceeds from a whitish acrimonious fluid, which it occasionally exsudes from its pores. The smell in some degree resembles that of orpiment, or arsenic in a state of evaporation, and sometimes the animal can ejaculate this fluid to the distance of three or four feet, which, if it happen to fall on any part of the room where the

creature is kept, will, according to Roesel, be perceived two months afterwards*.

To this species of Toad the following singular narrative, recorded by Boerhaave, may be supposed to refer:

"I lately read a wonderful history relative to the efficacy of odours. Two mountebanks contending for the preference of their Orvietan or antidote, had a promise from the magistrate of a licence or privilege to him whose antidote appeared by experiment to perform the most. The trial was therefore begun by taking poisons themselves. The first day each took the poison from his adversary, and each used his particular Orvietan or antidote; nor did the one or the other suffer any injury. On the next day, when they returned to their former calling, without any manifest hurt, the one told his adversary that he ought not any longer to contend with him, for that he had a kind of poison which resisted the efficacy of any antidote: but the other intrepidly defied him, and denied the fact. A drum was therefore brought, which was continually beat with sticks, and his adversary ordered to draw air from thence through his nose; to which he rashly consented, and immediately perished; for his more crafty ad-

* This is the less surprising, when we consider the effect of several other animal odours. The caterpillar of the Phalæna Cossus or Goat Moth, if kept, when full grown, in a chamber, for a short time, will have the same effect, and even a tin box in which it has been confined for some time, will retain the disagreeable odour for several months.

versary had included toads and vipers in the drum, which, being put into a rage by the beating and trembling of the instrument, breathed out a poisonous vapour, which manifestly exerted its virulence upon the seat of life itself; namely, the brain!!!"

VAR.?

Natter-Jack. *Brit. Zool.* 3. *p.* 18.

To the above animal seems greatly allied the species known in some parts of England by the name of the Natter-Jack, and which is thus described in the British Zoology:

"This species frequents dry and sandy places: it is found in *Putney Common*, and also near *Reevesby Abby, Lincolnshire,* where it is called the *Natter-Jack.* It never leaps, neither does it crawl with the slow pace of a toad, but its motion is liker to running. Several are found commonly together, and, like others of the genus, they appear in the evening.

"The upper part of the body is of a dirty yellow, clouded with brown, and covered with porous pimples, of unequal sizes: on the back is a yellow line. The under side of the body is of a paler hue, marked with black spots, which are rather rough. On the fore feet are four divided toes; on the hind feet five, a little webbed. The length of the body is two inches and a quarter; the breadth one and a quarter: the length of the

fore legs one inch one sixth; of the hind legs two inches."

In the above account no mention is made of any particular odour diffused by the animal on being disturbed; so that it remains doubtful whether it be the same with the mephitic toad before described, or not.

## GREEN TOAD.

Rana Viridis. *R. pallida, maculis subviridibus variata, verrucis rubellis aspersa.*

Pale Toad, varied with greenish spots, and reddish tubercles.

Rana variabilis. *R. colorem varians, dorso et lateribus gibbis verrucis in centro fulvescentibus, dorsi medii excilibus, in prominentissima hypochondiorum parte majoribus. Lin. Syst. Nat. Gmel.* p. 1051. *Pall. Spic. Zool.* p. 1. *t.* 6. *f.* 3, 4.

Bufo Schreberianus. *Laurent. Amph.* p. 27.

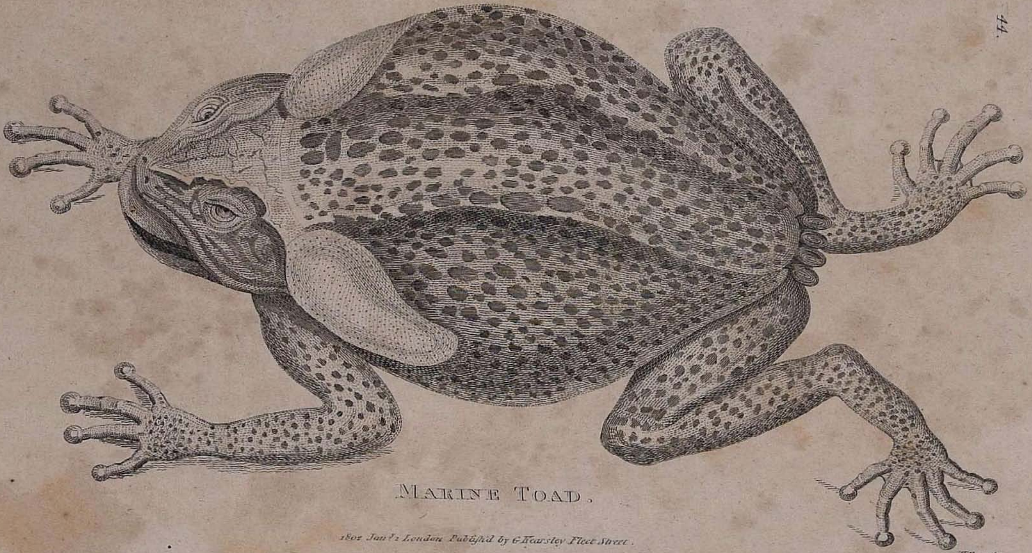
Bufo viridis. *Schneider Hist. Amph.* p. 200.

The Green Toad is a native of Germany and some other parts of Europe, and seems to have been first described by Valisneri, and afterwards by Laurenti, who informs us that it inhabits the cavities of walls about Vienna, and is distinguished by its greenish and confluent spots on the upper parts, disposed on a pale or whitish ground, and scattered over with tubercles, pretty much in the manner of the *Calamita*, or Mephitic Toad. Each of the green spots or patches is also bounded by a blackish margin, and the whole pattern has a somewhat rudely geographical or map-like appearance: on the legs and thighs the spots are

rather transverse, so as to form a kind of bars: the abdomen is of a pale or lurid colour: the tubercles are on some parts reddish, and on others green: the eyes are of a beautiful gold-colour, and seem, when the animal is irritated, to flash with a kind of phosphoric light. The odour of this species is very strong; resembling that of the common black or garden nightshade, but much more powerful, so as to fill a whole room. The female is of a browner cast than the male.

In winter this species retires under ground, and, like others of the genus, frequents the waters at the breeding season. It appears to vary occasionally in its colours; the ground-colour being sometimes pale carnation. Its voice is said to resemble in some degree the creaking of a door hinge. Laurenti informs us, that the smaller kinds of grey lizard (*Lacerta agilis. Var.*) on biting this toad, immediately become strongly convulsed, and die in the space of a few minutes; their tails continuing very strongly convulsed for a considerable time after all motion has ceased in the other parts. Its size is smaller than that of the common toad. Dr. Pallas describes it in his Spicilegia Zoologica under the title of Rana variabilis, or the Varying Toad; the general colour being described as whitish, and that of the spots green; but when placed in a hot sunshine becoming entirely grey; when sleeping the spots alone appearing grey; and, lastly, when torpid, the general tinge being a flesh colour.

44.



MARINE TOAD.

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Hill sculp.

## MARINE TOAD.

*Rana maxima fusco-flavescens verrucosa, gibbere utrinque humerali magno poris pertuso.*

Very large yellowish-brown Toad, with a large porous prominence over each shoulder.

*Rana scapulis gibbosis, clunibus nodosis.* Lin. Syst. Nat. p. 356.

*Rana scapulis singulis scuto punctato, corpore lemniscis convexis rotundis tectis, ano quadrifido.* Laurenti Spec. Med. p. 31.

This is a very large species; equalling, if not exceeding, the Bull Frog in size, and is of a pale brown colour, lighter beneath, and is marked all over, except on the head, with small, oval, chesnut-coloured tubercles: the head is smooth and veined with a few slight reticular marks, and from the nostrils to the shoulders, and thence down each side the back, run a pair of paler lines, as in many others of this genus. On each shoulder, as it were, or beyond the head, is a large and somewhat oval eminence or projecting part, of a light brown colour, and marked with numerous distinct pores. These parts are, in reality, as Mr. Schneider has observed, no other than the parotid glands, which are more or less protuberant in all Toads, but which in this seem more than commonly conspicuous, and may therefore be allowed to constitute a part of the specific character. The feet are destitute of webs, and the toes, which are four on the fore feet, and five on the hind, have a slightly orbicular termination, and are furnished with short claws, resembling the human nails in miniature:

the toes of the hind feet are very slightly connected at their base by a small approach towards a web. Seba calls this species a Marine American Frog, and observes, that it seems calculated for living both by land and sea; but gives no particular account of its native place. Linnæus appears to have described it merely from Seba's figure, and Mr. Schneider, in his *Historia Amphibiorum*, censures both the Linnæan and Laurentian specific characters, as depending on a circumstance common to all Toads, viz. the tuberous or prominent parotids; but since, as before observed, those parts are remarkably conspicuous in the present animal, there seems to be no good reason why they should not be particularized in the specific character*. As to the tubercles at the extremity of the body, they are evidently, as Mr. Schneider has well observed, entirely owing to the natural folding of the skin in that part, when the animal is placed in the attitude represented by Seba; and disappear when the legs are placed in a different direction.

Specimens of this animal, examined by Mr. Schneider, appeared to agree in every respect with Seba's figure, except in not having the tips of the toes visibly orbiculated. Mr. Schneider also speaks of a specimen of double the usual size, which he

* I must farther observe, that I have not pursued Mr. Schneider's arrangement in the disposition of this genus; but have placed some animals among the toads, which he would rank among the frogs, and vice versa.

saw in the collection of Dr. Bloch, and which appeared to resemble this species, but was entirely pale, or colourless.

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## DOUBTFUL TOAD.

Rana Dubia. *R. fusco-flavescens verrucosa, gibbere utrinque humerali magna porosa, pedibus posticis subhexadactylis subpalmatis.*

Yellowish-brown verrucose Toad, with a large porous prominence over each shoulder, and subhexadactyle subpalmated hind feet.

Rana musica ? ? *R. humeris gibbis punctatis. Lin. Syst. Nat. p.* 354.

Of this animal a specimen is preserved in the British Museum, under the title of Rana musica: its size is that of a common toad, but the shape of the body differs; seeming gradually to decrease from the shoulders to the hind legs, somewhat in the manner of the Hylæ or tree frogs. Its colour, so far as can be determined from the specimen, long preserved in spirit of wine, appears to have been a moderately deep brown above, and pale or whitish beneath, slightly marbled or variegated with brown. The whole upper surface is beset with distinct oval pustules or tubercles, somewhat resembling those of the *Rana marina* of Seba; to which, indeed, the animal appears allied by the very large size of the prominent parts on each side the shoulders, or parotids, as Mr. Schneider chuses to call them, which are extremely tumid, and appear perforated by numerous

distinct pores. The under parts of the body are granulated, or beset with tubercles of a much smaller kind: the outsides of the thighs are covered with slightly muricated or pointed warts. The feet are formed like those of the common Toad: the fore feet being unwebbed, and consisting of four toes, with pretty distinct claws or callous tips: the joints of the toes are also tuberculated beneath; and under the foot are two very remarkable calli, or protuberances, as in those of the R. mephitica: the hind feet are webbed towards the base, in the same manner as in the common Toad; and may rather be said to have six than five toes; the exterior side of each being furnished with a kind of spurious joint or blunt callous claw: the under part of the hind feet is tuberculated beneath the joints, and scattered over with many small granules.

Whether this be the species intended by Linnæus, under the name of Rana musica, may perhaps be questioned. In the Systema Naturæ he refers to no author or figure, but informs us, that the animal is a native of Surinam, and that it has a musical voice. I am, therefore, strongly inclined to believe that his Rana musica is in reality no other than the Merian Frog, which Seba describes as having a pleasing or musical voice, and adds, that the inhabitants consider the sound as a presage of fair weather.

# MITRED TOAD.

*Hill sculp.*

*1801 Jan.y 1 London Publish'd by G Kearsley Fleet Street.*

## MITRED TOAD.

Rana Typhonia. *R. fusca, linea dorsali albida, capite triangulari.*
Brown Toad, with whitish dorsal line, and triangular head.
Rana typhonia. *R. auricularibus lobis ovatis. Lin. Syst. Nat. p.* 356.
Rana margaritifera. *R. ex fusco rubra, granulis dilute rubellis conspersa. Lin. Syst. Nat. Gmel. p.* 1050. *Laurenti Spec. Med. p.* 30.
Bufo Typhonius. *Schneid. Amph. p.* 207.

The first describer of this species seems to have been Seba, who calls it by the name of *Aquaqua*, and represents it as a native of Brasil. Its size is that of a common Toad, and its colour on the upper parts is a rufous brown, with a pale or whitish line down the back, and which appears to be not equally conspicuous in different specimens: the under part of the animal is whitish or pale; the thighs are barred with brown; and the skin over the whole body is beset with numerous small granules or protuberances of a blueish or pearly cast; but the principal character of this species is the subtriangular form of the head; the sides of which, beyond each eye, project into an angular protuberance, as shewn in the figure; and from the nose along each side of the head runs an elevated white line over the shoulders to the sides: the fore feet are tetradactylous and unwebbed: the hind feet pentadactylous, and webbed in the usual proportion, as in the common Toad. Mr. Schneider speaks of five bifid tubercles on the middle of the back, which seem to be indeed expressed in

Seba's figure, though not mentioned in the description accompanying it. This species, on account of the singular form of its head, is commonly called the Mitred Toad.

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## BRASILIAN TOAD.

Rana Brasiliana. *R. rufa, maculis numerosissimis fuscis undique conspersa.*

Rufous Toad, marked on all parts with very numerous brown spots.

Bufo Brasiliensis, de Aguaquaquan dictus, orbiculatus. *Seb.* 1. *p.* 116. *t.* 73. *fig.* 1, 2.

Rana Brasiliensis. *R. ex cinereo flavescens, maculis rubris undosis, subtus glabra.* *Lin. Syst. Nat. Gmel. p.* 1049. *Laur. Amph. p.* 26.

This, which was first described by Seba, is considerably larger than the common Toad, which, in its general appearance, it much resembles, but the head is much shorter in proportion. The colour of the whole animal is rufous or yellowish-brown, paler beneath, and uniformly marked on all parts, both above and below, with very numerous, short, transverse, and somewhat wavy red-brown stripes or spots. The fore feet have only four toes, which are slightly rounded and dilated at the tips; and the hind feet, which are pretty strongly webbed, have five, which terminate in sharp points, or weak claws. This animal, according to Seba, is a native of the island of Cuba; but, from the name applied to it, both by Dr. Gmelin, in his edition of the Systema Naturæ, as well as by Seba

BRASILIAN TOAD.

Heath sculp.

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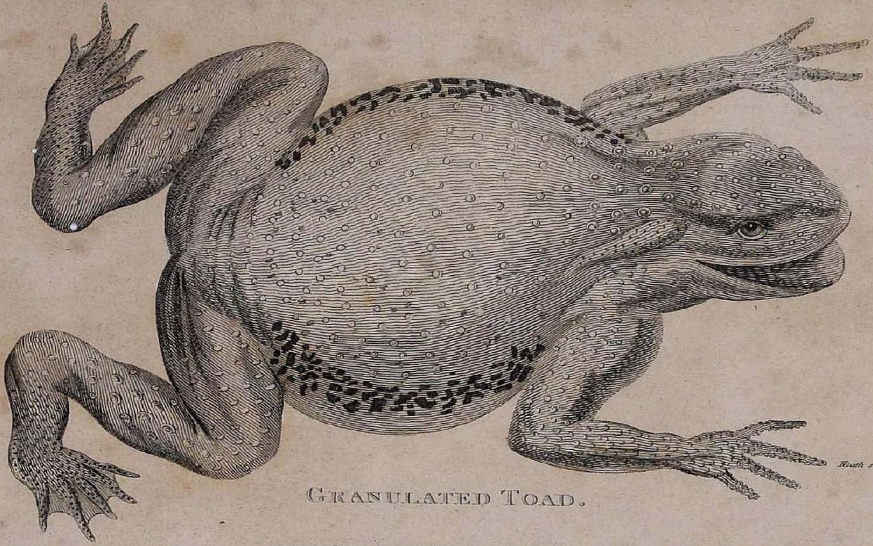

Heath sculp.

GRANULATED TOAD.

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himself, we may conclude that it is chiefly found in South America. Mons. Cepede informs us, that in the Royal Cabinet at Paris there is a specimen of this frog which measures above seven inches from the nose to the extremity of the body.

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## GRANULATED TOAD.

Rana Ventricosa. *R. granulata pallida, ventre dilatato, lateribus fusco maculatis.*

Pale-brown granulated Toad, with dilated abdomen marked on the sides with blackish spots.

Rana Brasiliensis orbicularis, Pipæ species. *Seb.* 1. *p.* 117. *t.* 74. *f.* 1.

Rana ventricosa. *R. ore semiovato, jugulo prominulo. Lin. Syst. Nat. p.* 355.

This species is also described and figured by Seba, who tells us that it is a native of Brasil, and is allied to the Pipa, or Surinam Toad. The head is large, as are also the eyes: the gape wide: the body somewhat depressed; the abdomen very broad; the limbs rather short than long; the fore feet tetradactylous; the hind feet pentadactylous and webbed. The colour of the upper parts is a pale yellowish or rufous brown; the under parts paler or whitish, and the sides marked by a longitudinal band of smallish irregular black or dusky spots. The upper surface, both of body and limbs, is also covered with somewhat distinctly placed granules or tubercles of different sizes; those on the neck, shoulders, and thighs, being larger than the rest; while on the last joints

of the legs they are much smaller, and more closely set. Seba's figure represents it as of very considerable size, measuring six inches from the nose to the end of the body.

---

## HORNED TOAD.

Rana Cornuta. *R. cinerea fusco fasciata, palpebris conicis.*
Cinereous Toad, fasciated with brown, with conical eyelids.
Rana cornuta. *R. palpebris conicis. Lin. Syst. Nat. p.* 356.
Bufo cornutus seu spinosus Virginianus. *Seb.* 1. *p.* 115. *t.* 72. *f.* 1, 2.

Among the whole tribe of Amphibia it is, perhaps, difficult to find an animal of a more singular appearance than the present, which may be regarded as of a more deformed and hideous aspect than even the Pipa, or Toad of Surinam. This arises not so much from the general shape of the animal, as from the extraordinary structure of the upper eyelids, which are so formed as to resemble a pair of short, sharp-pointed horns; while the width of the mouth is such as to exceed that of any other species, and even to equal half the length of the body itself.

This wonderful animal, says Seba, is of a short and thick form, and remarkable for having two sharp horns on its head, within which are situated the eyes. The skin of the body, both above and below, is of a cinereous yellow, striped with lines of obscure greyish brown. Along the back runs a broad white band, commencing at the head, and

HORNED TOAD.

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thence decreasing gradually, so as to appear narrow over the hind parts: it is also beset with small specks like pearls. All the rest of the body is rough with sharp spines, except the head, which is variegated with white, and the abdomen, which is of a deep rufous yellow. The legs are surrounded by a kind of bands or fillets, and the toes are marked in a similar manner, and resemble in some degree the human fingers, and are four in number on the fore legs, and five on the hind: the hind feet are also webbed. The head is very large and thick, and when the mouth is opened, exhibits a broad and thick tongue, shaped somewhat like an oyster, and fastened in front to the lower jaw, but loose behind, as in frogs: it is also covered over with papillæ: on each side the head, above the eyes and wide mouth, is a black spot on a white ground. The female agrees in all respects with the male, except that the mouth is still wider, and the front is variegated in a somewhat different manner: between the eyes is a broad stripe, growing narrower on the nose: beneath each eye is a spot resembling an additional or false eye: the hind feet very much resemble hands, having a thumb and four fingers, without being webbed as in the male.

Seba seems to have been misinformed as to the native country of this species, which he imagined to be Virginia; but the animal is now known to be a native of South America only.

It appears that this animal was pretty well described so long ago as the year 1726, in the cata-

logue of Vincent's Museum, at the Hague. It is there called *Bufo Americanus rarissimus, &c.* "The body large and round; the back cinereous, marbled with brown: the brown colour, which appears in the middle, parted by a cinereous list or stripe, which runs from the lower part of the horned eyes, to a great distance, and ends in a point. Above the large, horned eyes, which are seated near each other, and towards the back part of the head, are placed two holes, or seeming spiracles: the head is smooth and broad; but the back, on each side the middle stripe, is beset with rough tubercles as far as the belly: there are four feet, which are marbled with deep brown spots: the mouth is very large, being a hand's breadth in diameter, and equalling that of the body: beneath the mouth and neck the colour of the skin is brown: all the belly, as far as the rump, is whitish: the toes of the feet are divided; those of the fore feet being four in number, and those of the hind five."

Mr. Schneider also has described two specimens of this animal, which were brought from Surinam. The parts which Linnæus somewhat improperly calls horns, are, he observes, a pair of acuminated, callous processes, of a conical shape, seated on the eyelids: the whole back, according to Mr. Schneider, is scattered over with sharp tubercles; and the gape of the mouth reaches almost half the length of the body: the eyes rather small, and less distant than in most other frogs: the feet smooth, and the toes unarmed: the fore feet unwebbed;

HORNED TOAD.

Hill sculp.

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the hind feet slightly webbed: each upper eyelid, which rises up into a large and conical callus or horn, is beset with small tubercles: on the sides of the body were, in these specimens, some fulvous spots, and some large striated calli, resembling, in some degree, the spines on the back of a skate: the edge of the upper jaw was beset with very thickly-placed crenatures or denticulations: the tongue thick, rough, fixed in front, but loose on the back-part.

Thus the whole account confirms the fidelity of Seba's description and figures, which, from the extreme singularity, as well as rarity, of the species, seemed, in some degree, to have been considered as dubious.

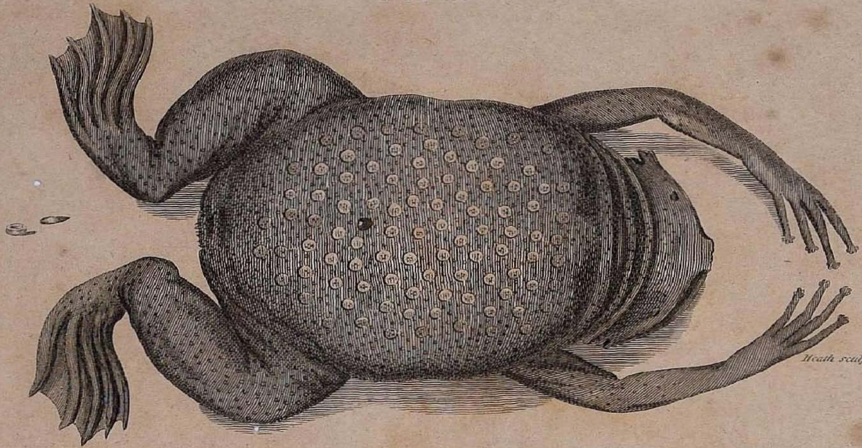
Of all animals yet known, this may, perhaps, according to our general or popular ideas of proportion and beauty, be considered as the most deformed: a sentiment, however, merely to be admitted so far as it relates to a comparison with other beings, which we have accustomed ourselves to consider as more perfect. On this subject let us attend to the sentiments of a celebrated writer of the seventeenth century.

"I hold there is a general beauty in the works of God, and, therefore, no deformity in any kind or species of creature whatsoever: I cannot tell by what logic we call a Toad, a Bear, or an Elephant, ugly, they being created in those outward shapes and figures which best express the actions of their inward forms. And having past that general visitation of God, who saw that all that he had made

was good, that is conformable to his will, which abhors deformity, and is the rule of order and beauty, there is no deformity but in monstrosity; wherein, notwithstanding, there is a kind of beauty; Nature so ingeniously contriving the irregular parts, as they become sometimes more remarkable than the principal fabrick. To speak yet more narrowly, there never was any thing ugly or mis-shapen but the chaos: wherein notwithwithstanding, to speak strictly, there was no deformity, because no form; nor was it yet impregnate by the voice of God. Now Nature is not at variance with Art, nor Art with Nature; they being both the servants of his Providence. Art is the perfection of Nature; were the world now as it was on the sixth day, there were yet a Chaos. Nature hath made one World, and Art another. In brief, all beings are artificial, for Nature is the Art of God."—*Rel. Med. p.* 9.

The learned and acute Sir Kenelm Digby, in his observations on the above passage, replies, "That logick which he quarreleth at, for calling a Toad or Serpent ugly, will in the end agree with his: for nobody ever took them to be so in respect to the *Universe* (in which regard he defendeth their regularity and symmetry), but only as they have relation to us."

PIPA.



Heath sculp.

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## PIPA.

Rana Pipa. *R. fusca, digitis anticis apice quadrifidis.*
Brown Toad, with the toes of the fore feet quadrifid at their extremities.
Rana Pipa. *R. digitis anticis muticis quadridentatis, posticis unguiculatis. Lin. Syst. Nat. p.* 354.
Bufo aquaticus pullos super dorsum gerens. *Merian Surinam, pl.* 59.
Bufo aquaticus Surinamensis. *Vincent. pip.* 1726. *t.* 62.
Rana Surinamensis. *Bradl. Nat. t.* 22. *f.* 1.
Bufo s. Pipa Americana. *Seb.* 1. *p.* 121. *t.* 77.
The Pipa, or Surinam Toad.

THIS also is one of those animals which, at first view, every one pronounces deformed and hideous; the general uncouthness of its shape being often aggravated by a phænomenon unexampled in the rest of the animal world, viz. the young in various stages of exclusion, proceeding from cells dispersed over the back of the parent.

The size of the Pipa considerably exceeds that of the common toad: the body is of a flattish form; the head subtriangular; the mouth very wide, with the edges or corners furnished with a kind of short cutaneous, and, as it were, lacerated appendage on each side: in the male, however, the head is rather oval than triangular, and the parts just mentioned less distinct: the fore feet are tetradactylous, the toes long and thin, and each divided at the tip into four distinct portions or processes, each of which, if narrowly inspected with a magnifier, will be found to be

again obscurely subdivided almost in a similar manner: the hind feet are five-toed, and very widely webbed; the web reaching to the very tips of the toes. The male Pipa is larger than the female, measuring sometimes not less than seven inches from the nose to the end of the body: the nose in both sexes is of a somewhat truncated form, like that of a mole, or hog, and the eyes extremely small: from each eye, in the female, run two rows of granules or glandular points to the middle of the back: the whole body is also covered with similar points or glandules, but smaller than the former: in the male a single row of granules proceeds from each eye down the back, instead of a double row, as in the female: these points or granules are also larger than in the female, and gradually decrease in size as they approach the lower part of the back: the skin round the neck, in both sexes, forms a kind of loose or wrinkled collar: the abdomen of the male is of a browner tinge than that of the female, and is sometimes obscurely spotted with yellow; but the general colour, both of the male and female Pipa, is a dark or blackish brown. The Pipa seems to have been first made known to European naturalists about the latter end of the seventeenth century, and to have been first described by Ruysch. It was afterwards described and figured by Madam Merian; but with much greater accuracy by the editor of Seba's Museum, where it is represented in its different states.

It was for a long time supposed that the ova of

# PIPA.

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this extraordinary animal were produced in the dorsal cells, without having been first excluded in the form of spawn; but later observations have proved that a still more extraordinary process takes place; and that the spawn after exclusion, is received into the open cells of the back, and there concealed till the young have arrived at maturity. This discovery was made by Dr. Fermin, who had an opportunity, during his residence at Surinam, to investigate the natural history of the Pipa in a more accurate manner than had before been practicable. His account is, that the female Pipa deposits her eggs or spawn at the brinks of some stagnant water; and that the male collects or amasses the heap of ova, and deposits them with great care on the back of the female, where, after impregnation, they are pressed into the cellules, which are at that period open for their reception, and afterwards close over them; thus retaining them till the period of their second birth; which happens in somewhat less than three months, when they emerge from the back of the parent in their complete state. During the time of their concealment, however, they undergo the usual change of the rest of this genus, being first hatched from the egg in the form of a tadpole; and gradually acquire their complete shape, some time before their exclusion. This latter circumstance, which does not appear to have been known to Fermin, is confirmed by the united testimonies of Camper, Blumenbach, and Spallanzani, who have all had an opportunity of inspect-

ing specimens of the animal in a state favourable to the examination of this particular. Upon the whole, it appears that there is some analogy in the process of nature with respect to the production of the young, between this animal and the opossum.

According to Fermin, the Pipa is calculated by Nature for producing but one brood of young; and, compared with the rest of the genus, it can by no means be considered as a very prolific animal; the number of young produced by the female which he observed, amounted to seventy-five, which were all excluded within the space of five days.

By a singular error in the Gmelinian edition of the Systema Naturæ, the young of the Pipa are said to be at first tailless; afterwards to acquire that part, and again to lose it.

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## SHORT-HEADED TOAD.

Rana Breviceps. *R. subfusca, subtus pallida, corpore ovato-convexo, vitta longitudinali cinereo-dentata, pedibus fissis.*

Brownish Toad, pale beneath, with ovate convex body, marked by a longitudinal ash-coloured dentated band.

Rana gibbosa. *R. corpore ovato-convexo, vitta longitudinali cinereo-dentata, pedibus fissis. Lin. Syst. Nat.* p. 355.

Rana rubeta Africana. *Seb.* 2. *p.* 37. *t.* 37. *f.* 3.

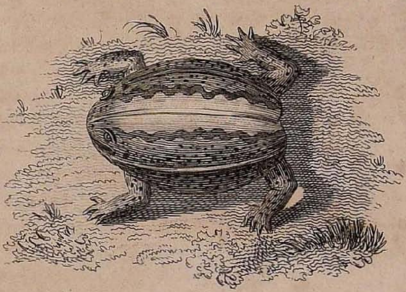
Le Bossu. *Cepede.*

Rana breviceps. *Schneid. Amph.* p. 140.

The Rana breviceps, or Short-headed Toad, is described by Linnæus, in the first volume of the

SHORT HEADED TOAD. 52.

*from Seba.*



Heath sculp.

LE BOSSU, *Cepede.*

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*Amoenitates Academicæ*, where it is said to be of a subglobose form, extremely convex, of a wrinkled but not tuberculated surface, clouded, and marked by a palish longitudinal dorsal band, which is sinuated on each side: the head very small, obtuse, and immersed in the thorax: the toes of the fore feet unwebbed, without claws, and somewhat tuberous or knotted beneath the joints: the toes of the hind feet six; the thumb broader than the others. In the Systema Naturæ he describes it as having an ovate convex body, unwebbed feet, and a longitudinal, cinereous, dentated band or stripe. He does not, however, quote Seba, in whose work it appears to have been first figured. It is one of the smaller species, scarcely exceeding half the size of the common toad. The hind feet are slightly palmated, though this circumstance is not particularized in the Linnæan description above quoted. It is a native of Senegal and other parts of Africa.

---

## INDISTINCT TOAD.

Rana Systoma. *R. corpore subgloboso, capite indistincto, rictu angusto.*

Toad with subglobose body, indistinct head, and small mouth.

Rana Systoma. *Schneid. Amph. p.* 144.

This, from Mr. Schneider's account, who seems to have been its first describer, is much allied to the former; having a thick roundish body, with the head so blended in the general outline that

the mouth is scarce apparent: the legs are very short, and the thighs are, as it were, imbedded or inclosed in the wrinkled skin of the sides. The whole animal is smooth or without tubercles: the fore feet unwebbed; the hinder very slightly webbed. The colour of the whole is pale or whitish, spotted or marbled with brown on the upper part: across each of the upper eyelids runs a curved white band or streak uniting towards the nostrils, and upper lip: the eyes are of moderate size. This species was described from a specimen in spirits from the East Indies.

---

## HEADLESS TOAD.

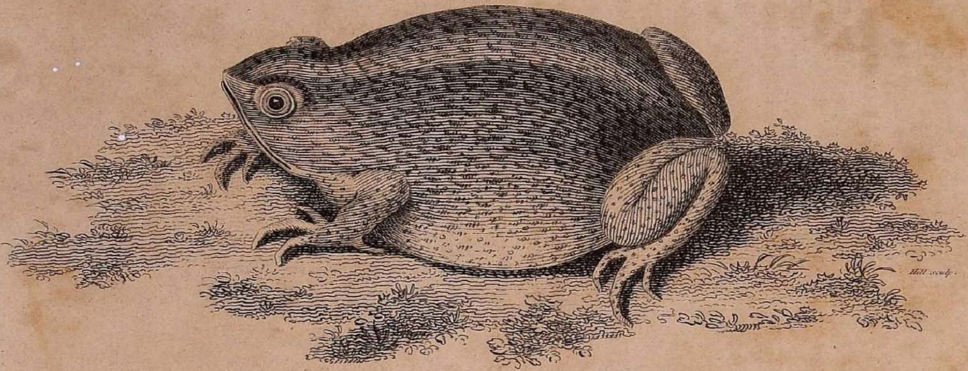
Rana Acephala. *R. corpore subgloboso fusco albo vario, capite indistincto, rictu angustissimo deorsum curvato.*

Brownish Toad, marbled with white, with indistinct head and very small mouth, curving downwards.

Rana acephala. *Schneid. Amph. p.* 146.

This is extremely allied to the two former species, and might even be mistaken for the Short-headed Toad, but differs not only in colour, but in the still less apparent distinction of the head, which is so lost in the outline of the body as to be perfectly blended: the mouth is also much smaller than in either of the two preceding animals, and curves downwards at each corner. The colour of this species is brown, variegated with white. The legs are short and weak, as in the two former kinds.

# CAROLINA TOAD.



*Hill sculp.*

1802 Jan.1 London Publish'd by G. Kearsley Fleet Street.

## CAROLINA TOAD.

Rana Lentiginosa. *R. griseo fusco irrorata, capite subacuminato.*
Grey Toad, freckled with brown, with subacuminated head.
Land-Frog. *Catesb. Carol. 2. pl. 69.*

This very much resembles the common toad in its general appearance, but has a smaller head and sharper snout. Its motion also is not that of crawling, but leaping. Its colour is a dusky brown, paler beneath, and it is all over mottled with minute blackish or dark brown spots: the irides of the eyes are red. This animal is common in Carolina and Virginia, feeding, like most others of this genus, on insects, and is said to be particularly attracted by any luminous insects, as fire-flies, glow-worms, &c. and will even seize and swallow a small live wood coal of the size of the end of the finger; mistaking it for some luminous insect, and seeming to receive no immediate injury in consequence. These animals are said to be most common in wet weather, but are very frequent on the higher grounds, and appear in the hottest part of the day, as well as in the evening. They vary somewhat in colour, being deeper or paler in different individuals.

## CRESCENT TOAD.

Rana Semilunata. *R. nigricans, subtus pallida, macula auriculari utrinque lunata alba.*

Blackish Toad, paler beneath, with a white crescent-shaped spot at each ear.

Bufo semilunatus. *Schneid. Amph. p.* 215.

Described by Mr. Schneider, from a specimen in the collection of Dr. Bloch. Size larger than that of the common toad: body blackish; paler beneath: behind the parotids a large, round, white spot: tympanum black, with a semicircular white spot behind it: towards the middle of the back a long narrow spot on each side: hind feet semipalmated: body covered above with tubercles.

## BLACK-LIPPED TOAD.

Rana Melanosticta. *R. cinereo-flavescens, verrucis nigro-punctatis, labio superiore palpebrisque nigro marginatis plantis subhexadactylis semipalmatis.*

Yellowish-brown Toad, with black-speckled warts; the upper lip and eyelids edged with black, and subhexadactylous semipalmated hind feet.

Bufo melanostictus. *Schneid. Amph. p.* 216.

In the collection of Dr. Bloch: supposed to be a native of China: colour cinereous; body and limbs thickly scattered over with warted tubercles, which are speckled with black, except on the sides and belly, where they are of the colour of

the rest of the skin: space between the eyes depressed, and smooth; the borders of the projecting orbits of the eyes are black, and run backwards as far as the drum of the ears, and descending in front, unite before the nostrils: the same border also surrounds the upper jaw: the tips of the toes, and the two calli of both hind and fore feet, are also black. The hind feet are semipalmated. A fine specimen, agreeing with this description, is preserved in the British Museum; its size is nearly equal to that of the common toad, which it much resembles in habit: its colour is a pale yellowish brown.

---

## ARUNCO.

Rana Arunco. *R. corpore verrucoso, pedibus omnibus palmatis.*
Frog with warted body, and all the feet webbed.
Rana Arunco. *Molin. Chil. p.* 190.

Larger than the common frog; nearly of the same colour; with the body warted, and all the feet palmated. It is a native of Chili, and is described by Molina.

## YELLOW TOAD.

Rana Lutea. *R. corpore luteo, pedibus omnibus subpalmatis. Molin. Chil. p.* 190. *Lin. Syst. Nat. Gmel. p.* 1050.
Yellow Toad, with all the feet subpalmated.

THIS has the general habit of a common frog, but is much smaller, and the skin is warted: its colour yellow*; all the feet subpalmated. Inhabits, like the former, the waters of Chili.

SOME other undetermined or uncertain species might be added to this genus, from the vague descriptions and rude figures of authors; but as no dependence can be placed on their accuracy, it is perhaps best to omit them altogether.

* The colour, throughout this whole genus, but more particularly among the Toads, differs in intensity, according to the time which has elapsed since the animal cast its cuticle. The manner in which toads perform this process is thus related by Mr. Schneider, from Grignon, who was an eye-witness of it: "The skin splits or cracks in a longitudinal direction both above and below; and the animal pulls off that of the left side with its left foot, and delivering it into the right foot, applies it to its mouth and swallows it: it then performs the same process on the right side with the right foot, and delivering the cuticle into the left foot, swallows it like the former.

FLYING DRAGON.

1801 Decr 1. London Published by G. Kearsley, Fleet Street.

# DRACO. DRAGON.

## *Generic Character.*

| | |
|---|---|
| *Corpus* tetrapodum, caudatum, alatum: alis propriis. | *Body* four-footed, tailed, and furnished on each side with an expansile, radiated, wing-like skin. |

### FLYING DRAGON.

Draco Volans. *D. brachiis ab ala distinctis. Lin. Syst. Nat. p.* 358.

Dragon, with the fore legs unconnected with the wings.

*Lacerta cauda tereti, pedibus pentadactylis, alis femore connexis, crista gulæ triplici. Amoen. Acad.* 1. *p.* 540.

Lacerta volans indica. *Raj. Quadr. p.* 275.

Lacerta africana volans, s. Draco volans. *Seb.* 2. *t.* 86. *f.* 3.

Lacertus volans, s. Dracunculus. *Bont. Jav.* 57. *t.* 57.

Flying Dragon. *Nat. Misc.* 1. *pl.* 8.

THE very name of this genus conveys to the mass of mankind the idea of some formidable monster, and recalls to the imagination the wild fictions of romance and poetry; but the animal distinguished by that title in modern natural history is a small and harmless Lizard, agreeing in the general form of its body with the rest of that

tribe; but furnished with large, expansile, cutaneous processes, covered, like the rest of the animal, with small scales, and strengthened internally by several radii or ribs, extending to the extreme verge of the membrane, and giving the power of contraction and dilatation. As this is a circumstance which separates it from the rest of the Lizard tribe, Linnæus was induced to institute for it a distinct genus under the title above mentioned, and which it seems more proper to retain than to rank the animal, as some have done, under the genus Lacerta.

The total length of this highly curious creature is commonly about nine or ten inches, or at most a foot; the tail being extremely long in proportion to the body, which does not measure more than about four inches in length. The head is of a very singular form, being furnished beneath with a very large triple pouch or process, one part of which descends beneath the throat, while the two remaining parts project on each side; all are sharp-pointed, and seem analogous in some degree to the gular crests of the Guana and other Lizards, but are still more conspicuous in proportion to the size of the animal. The head is of moderate size; the mouth rather wide; the tongue large, and thick at the base; the teeth small and numerous; the neck rather small; the body and limbs somewhat slender, and universally covered with small acuminated and closely-set scales, which incline more to a minutely aculeated appearance on the tail. The colour of the Dragon

on the upper parts is an elegant pale blue, or blueish grey, the back and tail being marked by several transverse dusky undulations or bars, while the wings are very elegantly spotted, more especially towards the broadest part, with differently-shaped patches of black, deep-brown, and white: the border of the wings is also white, and the whole under surface of the animal is of a very pale or whitish brown colour.

This animal is no where so elegantly or faithfully figured as is the work of Seba; the representations in the works of other authors being in every respect inferior, and even unworthy of quotation.

The Dragon is an inhabitant of many parts of Asia and Africa, where, like most of the smaller Lizards, it delights in wandering about trees, and from the peculiar mechanism of its lateral membranes, is enabled to spring from bough to bough, and to support itself in air for some short space, in the manner of a flying squirrel, or even of a bat. It feeds on insects, and is in every respect an animal of a harmless or inoffensive nature.

### VAR. ?

Draco Præpos. *D. brachiis alæ adnatis. Lin. Syst. Nat. p.* 258.
Dragon with wings coalescing with the arms.
Draco volans Americanus. *Seb.* 1. *t.* 102. *f.* 2.

This is considered by Linnæus in the twelfth edition of the Systema Naturæ as a distinct species; on the authority of Seba, who represents it a

native of America; but it seems at present to be unknown to other naturalists; and is, perhaps, no other than a variety of the preceding; differing in the circumstances described in the specific character, and having a more slender neck and body, and a single rather than a triple gular pouch.

It may not be improper here to add, that all the other animals described and figured in the works of some of the older naturalists, under the name of Dragons, are merely fictitious beings, either artificially composed of the skins of different animals, or made by warping some particular species of the Ray or Skate tribe into a dragon-like shape, by expanding and drying the fins in an elevated position, adding the legs of birds, &c. and otherwise disguising the animals. Such also are the monstrous representations (to be found in Gesner and Aldrovandus) of a seven-headed Dragon, with gaping mouths, long body, snake-like necks and tail, and feet resembling those of birds. These deceptions appear to have been formerly practised with some success; and misled not only the vulgar, but even men of science. Of this a curious example is said to have occurred towards the close of the seventeenth century, and is thus commemorated by Dr. Grainger, from a note of Dr. Zachary Grey, in his edition of Hudibras, vol. 1. p. 125.

"Mr. Smith, of Bedford, observes to me, on the word *Dragon*, as follows: Mr. Jacob Bobart, botany professor* of Oxford, did, about forty years

* Not, properly speaking, Professor, but rather Superintendant of the garden.

ago, find a dead rat in the physic garden, which he made to resemble the common picture of dragons, by altering its head and tail, and thrusting in taper sharp sticks, which distended the skin on each side till it mimicked wings. He let it dry as hard as possible. The learned immediately pronounced it a dragon; and one of them sent an accurate description of it to Dr. Magliabechi, librarian to the grand Duke of Tuscany; several fine copies of verses were wrote on so rare a subject; but at last Mr. Bobart owned the cheat; however it was looked upon as a master-piece of art; and, as such, deposited in the Museum, or Anatomy-School, where I saw it some years after."

The most remarkable instance, in later times, is that of a Dragon of the kind above-mentioned, which was in possession of a merchant at Hamburgh, and which was considered by its proprietor as of the value of 10,000 florins; but which the penetrating eye of Linnæus, during his visit to that city, soon discovered to be a mere deception, ingeniously contrived by a dextrous combination of the skins of snakes, teeth of weesels, claws of birds, &c. being, as Linnæus himself expresses it, "*non Naturæ sed artis opus eximium.*" It is said that Linnæus, in consequence of this discovery, was obliged to fly from Hamburgh, in order to avoid the wrath of the enraged proprietor, who determined on a prosecution against him, as having injured the reputation of his property. An exact representation of this curious imposture is given by Seba, who, however, does

not, as commonly supposed, describe it as a really existing species, but merely as so reported. It would be scarcely excusable to swell the number of plates in the present work, by an introduction of this figure, merely to elucidate the anecdote: it is, therefore, entirely omitted.

# LACERTA. LIZARD.

## *Generic Character.*

| | |
|---|---|
| *Corpus* tetrapodum, elongatum, caudatum, nudum. | *Body* four-footed, elongated, tailed; without any secondary integument. |

THIS numerous genus may be divided into the following sections or sets, viz.

1. *Crocodiles*, furnished with very strong scales.
2. *Guanas*, and other Lizards, either with serrated or carinated backs and tails.
3. *Cordyles*, with denticulated, and sometimes spiny scales, either on the body or tail, or both.
4. *Lizards proper*, smooth, and the greater number furnished with broad square scales or plates on the abdomen.
5. *Chamæleons*, with granulated skin, large head, long missile tongue, and cylindric tail.
6. *Geckos*, with granulated or tuberculated skin, and lobated feet, with the toes lamellated beneath.
7. *Scinks*, with smooth, fish-like scales.

8. *Salamanders, Newts,* or *Efts,* with soft skins, and of which some are water-lizards.
9. *Snake-Lizards,* with extremely long bodies, very short legs, and minute feet.

The above divisions neither are, nor can be, perfectly precise; since species may occur which may with almost equal propriety be referred to either of the neighbouring sections; but in general they will be found useful in the investigation of the species.

## CROCODILES.

### COMMON CROCODILE.

Lacerta Crocodilus. *L. capite cataphracto, nucha carinata, cauda superne cristis binis lateralibus horida. Lin. Syst. Nat. Gmel. p.* 1057. *Blumenb. Naturg.* 262.

Lizard with mailed head, carinated neck, and tail furnished on the upper part with two lateral crested processes.

*Lacerta cauda compressa serrata, pedibus triunguiculatis, palmis pentadactylis, plantis tetradactylis palmatis. Lin. Syst. Nat. p.* 359.

Crocodilus. *Gesn. Aldr. Bellon. Jonst. &c.*

The Common or Nilotic Crocodile.

The Crocodile, so remarkable for its size and powers of destruction, has in all ages been regarded as one of the most formidable animals of the warmer regions. It is a native of Asia and Africa, but seems to be most common in the latter; inhabiting large rivers, as the Nile, the

COMMON CROCODILE.

1801 Decr 1 London Published by G. Kearsley. Fleet Street.

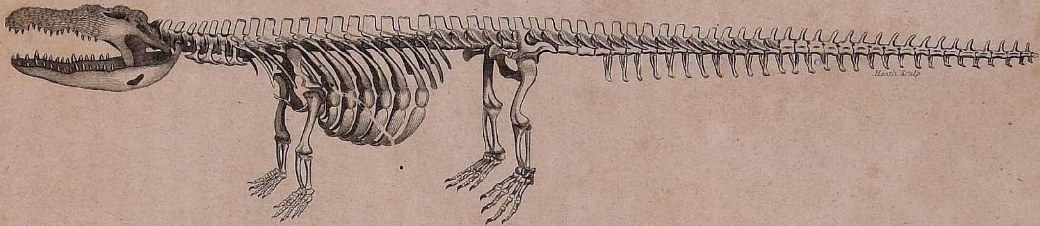
Niger, &c. and preying principally on fish, but occasionally seizing on almost every animal which happens to be exposed to its rapacity. The size to which the Crocodile sometimes arrives is prodigious; specimens being frequently seen of twenty feet in length, and instances are commemorated of some which have exceeded the length of thirty feet. The armour with which the upper part of the body is covered may be numbered among the most elaborate pieces of Nature's mechanism. In the full grown animal it is so strong and thick as easily to repel a musket-ball; on the lower parts it is much thinner, and of a more pliable nature: the whole animal appears as if covered with the most regular and curious carved-work: the colour of a full-grown Crocodile is blackish-brown above, and yellowish-white beneath; the upper parts of the legs and the sides varied with deep yellow, and in some parts tinged with green. In the younger animals the colour on the upper parts is a mixture of brown and pale yellow, the under parts being nearly white: the eyes are provided with a nictitating membrane, or transparent, moveable pellicle, as in birds: the mouth is of vast width, the rictus or gape having a somewhat flexuous outline, and both jaws being furnished with very numerous sharp-pointed teeth, of which those about the middle part of each jaw considerably exceed the rest in size, and seem analogous to the canine teeth in the viviparous quadrupeds or mammalia: the number of teeth, in each jaw, is

thirty, or more *; and they are so disposed as to alternate with each other when the mouth is closed: on taking out the teeth and examining the alveoli, it has been found that small teeth were forming beneath, in order to supply the loss of the others when shed: the auditory foramina are situated on the top of the head, above the eyes, and are moderately large, oval, covered by a membrane, having a longitudinal slit or opening, and thus in some degree resembling a pair of closed eyes: the legs are short, but strong and muscular: the fore feet have five toes, and are unwebbed: the hind feet have only four toes, which are united towards their base by a strong web: the two interior toes on each of the fore feet, and the interior one of the hind feet, are destitute of claws †: on the other toes are strong, sharp, and curved claws: the tail is very long, of a laterally compressed form, and furnished above with an upright process, formed by the gradual approximation of two elevated crests proceeding from the lower part of the back.

The Crocodile, in a young state, is by no means to be dreaded, its small size and weakness pre-

* The number is observed to vary in different specimens; probably from the different age of the animal. In the skeleton described by Grew, and which measured about fourteen feet in length, there were thirty teeth in each jaw, and those teeth which appeared to be the least worn, were serrated by small denticulations on each side.

† In the skeleton described by Grew there were claws on all the toes.




SKELETON of CROCODILE.

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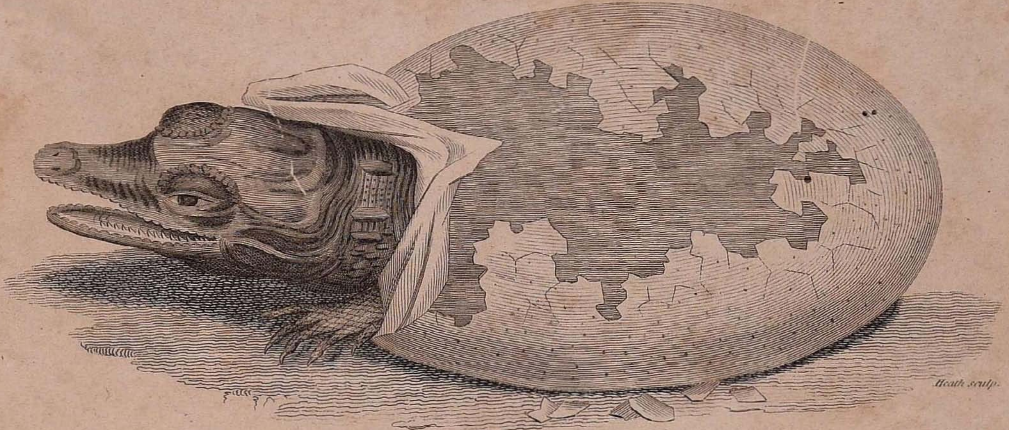
venting it from being able to injure any of the larger animals: it, therefore, contents itself with fish and other small prey; and such as have occasionally been brought to Europe are so far from being formidable or ferocious, that they may generally be handled with impunity, and either from weakness, or the effect of a cold climate, seem much inclined to torpidity; but in the glowing regions of Africa, where it arrives at its full strength and power, it is justly regarded as the most formidable inhabitant of the rivers. It lies in wait near the banks, and snatches dogs and other animals, swallowing them instantly, and then plunging into the flood, and seeking some retired part, where it may lie concealed till hunger again invites it to its prey. In its manner of attack it is exactly imitated by the common Lacerta palustris, or Water Newt, which, though not more than about four or five inches long, will with the greatest ease swallow an insect of more than an inch in length; and that at one single effort, and with a motion so quick, that the eye can scarcely follow it. It poises itself in the water, and having gained a convenient distance, springs with the utmost celerity on the insect, and swallows it. If, therefore, a small lizard of four or five inches only in length can thus instantaneously swallow an animal of a fourth part of its own length, we need not wonder that a Crocodile of eighteen, twenty, or twenty-five feet long should suddenly ingorge a dog or other quadruped,

Crocodiles, like the rest of the Lacertæ, are oviparous: they deposit their eggs in the sand or mud near or on the banks of the rivers they frequent, and the young, when hatched, immediately proceed to the water; but the major part are said to be commonly devoured by other animals, as Ichneumons, birds, &c. The egg of the common or Nilotic Crocodile is not much larger than that of a goose, and in external appearance bears a most perfect resemblance to that of a bird; being covered with a calcarious shell, under which is a membrane. When the young are first excluded the head bears a much larger proportion to the body than when full grown. The eggs, as well as the flesh of the Crocodile itself, are numbered among the delicacies of some of the African nations, and are said to form one of their favourite repasts.

The gradual evolution and growth of the Crocodile are thus poetically described by Dr. Darwin:

"So from his shell, on Delta's showerless isle
Bursts into birth the monster of the Nile;
First, in translucent lymph, with cobweb threads
The brain's fine floating tissue swells and spreads:
Nerve after nerve the glistening spine descends;
The red heart dances, the aorta bends:
Thro' each new gland the purple current glides,
New veins meand'ring drink the refluent tides.
Edge over edge expands each hardening scale,
And sheaths his slimy skin in silver mail.
Erewhile, emerging from the brooding sand,
With Tiger paw he prints the brineless strand:
High on the flood with speckled bosom swims,
Helm'd with broad tail, and oar'd with giant limbs:

57.



Heath sculp.

YOUNG CROCODILE *hatching from the* EGG.

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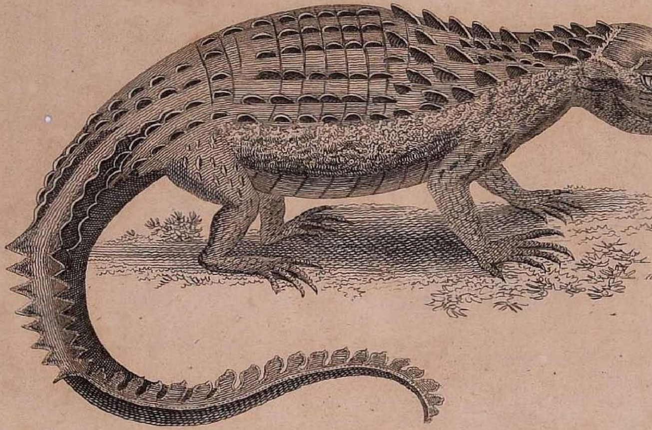
CEYLON CROCODILE *var. from Seba.*



*Heath sculp.*

*1802 Jan.y 1 London Published by G Kearsley Fleet Street.*

Rolls his fierce eye-balls, clasps his iron claws,
And champs with gnashing teeth his massy jaws.
Old Nilus sighs thro' all his cane-crown'd shores,
And swarthy Memphis trembles and adores."

In the large rivers of Africa Crocodiles are said to be sometimes seen swimming together in vast shoals, and resembling the trunks of so many large trees floating on the water. The negroes will sometimes attack and kill a single Crocodile, by stabbing it under the belly, where the skin, at the interstices of the scales, is soft and flexible. It is also, in some countries, the custom to hunt the Crocodile by means of strong dogs, properly trained to the purpose, and armed with spiked collars. It is likewise pretended, that in some parts of Africa Crocodiles are occasionally tamed; and it is said that they form an article of Royal magnificence with the Monarchs of those regions; being kept in large ponds or lakes appropriated to their residence. We may add, that the ancient Romans exhibited these animals in their public spectacles and triumphs. Scaurus, during his ædileship, treated the people with a sight of five Crocodiles, exhibited in a temporary lake, and Augustus introduced one into his triumph over Cleopatra, as well as several others, for the entertainment of the people.

A vulgar error seems to have long prevailed relative to this animal's moving his upper jaw. This error seems to have been first rectified by Grew, in his description of the skeleton of a Crocodile

in the Museum of the Royal Society. His words are these: "The articulations of the lower jaw with the upper, and of the occiput with the foremost vertebra of the neck, are here made both in the same manner, as in other quadrupeds, notwithstanding the tradition of his moving the upper jaw: the senselessness of this tradition is plain from the structure of the bones, that is the articulation only of the occiput with the neck, and of the nether jaw with the upper, as abovesaid."

"The first author of it was Aristotle, in his fourth book *de partibus animalium, cap.* 11. and thus much is true, not only of this creature, but of all others which have a long head and a wide rictus, that when they open their mouths, they seem to move both jaws; as both the viper and the lizard; and for the same reason Columna might say as much of the Hippopotamus, that he moves the upper jaw, as the Crocodile. So all birds, especially with long bills, shew the contemporary motion of both the mandibles; the musculi splenii pulling back the occiput, and so a little raising the upper, while the musculi digastrici pull the other down. But that this motion was not meant by Aristotle, appears in his first book De Hist. Anim. c. 11. & lib. 3. c. 7. where he saith more plainly, that of all other animals only the Crocodile moveth the upper jaw; so that he speaks of it as a motion strange and peculiar; as if the upper mandible did make an articulation with the cranium; contrary to what is here seen; and if we will hear Piso, who

probably speaks Aristotle's meaning, as plainly as he doth his own, he goes further, and saith that the Crocodile doth not only move his upper jaw, but that his nether jaw is immoveable; than which assertion, to one that hath any competent knowledge in anatomy, and seeth the head and lower jaw of this animal articulated in the same way as in other animals, nothing can appear more ridiculous."

Another error which has sometimes been maintained both among ancient and modern naturalists, is, that the Crocodile has no tongue: this part, however, is in reality very large, and even more so in proportion than that of an ox, but from its strong connexion with the sides of the lower jaw, it is as it were fixed or tied down, so as to be incapable of being stretched forwards as in most other animals. The describer, however, of Seba's Museum, denies that it can properly be called the tongue.

It may not be improper to add, that the Crocodile is supposed to be the *Leviathan* of the sacred writings.

VAR. ?

BLACK CROCODILE.

THIS, according to Mons. Adanson, is found in the river Senegal, and differs from the common Crocodile in having a longer snout, and in being almost entirely black. It is said to be extremely rapacious, and has hitherto been observed only in

the river above mentioned, where the common Crocodiles are also found in considerable numbers.

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## ALLIGATOR.

Lacerta Alligator. *L. capite imbricato plano, nucha nuda, cauda superne binis lineis lateralibus aspera. Lin. Syst. Nat. Gmel. p.* 1058. *Blum. Naturg. p.* 263.

Lizard with flat, imbricated head, naked or uncarinated neck, and tail furnished above with two rising lateral lines.

Crocodilus Americanus. *Laur. Amph. p.* 54.

Jacare. *Marcgr. Bras.* 242.

Crocodilus. *Sloan. Jam.* 2. *p.* 332.

Lacertus maximus. *Catesb.* 2. *t.* 63.

The Alligator, or American Crocodile.

So very great is the general resemblance between this animal and the Crocodile, that many naturalists have been strongly inclined to consider it as a mere variety, rather than a distinct species. Among others, the Count de Cepede is of this opinion, and declares that on examining several specimens of American Crocodiles, and collating them with those of the Nile, he could not but consider them as absolutely of the same species; and that the slight differences observable between them may be well supposed to be owing merely to the effect of climate. Both animals, he observes, agree in the number of teeth; and the general manners and habits of both are found to be similar in the old and new continent. The more accurate

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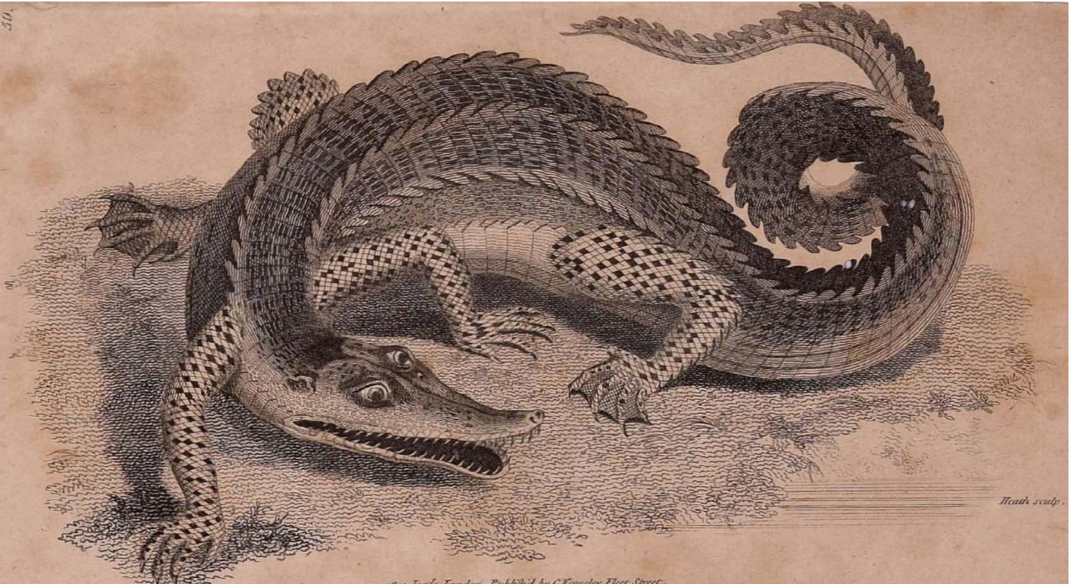


Heath sculp.

1802 Jan.y 1 London Published by C. Kearsley Fleet Street.

discrimination, however, of Blumenbach and some others seems in reality to prove that the Alligator or American Crocodile is specifically distinct from the Nilotic, though the difference is not such as immediately to strike a general observer. The leading difference, if it be allowed to constitute a distinction of species, seems to be, that the head of the Alligator is rather smooth on the upper part than marked with those very strong rugosities and hard carinated scales which appear on that of the Crocodile; and that the snout is considerably flatter and wider, as well as more rounded at the extremity. The Alligator arrives at a size not much inferior to that of the Crocodile, specimens having been often seen of eighteen or twenty feet in length.

"Though the largest and greatest numbers of Alligators," says Catesby, "inhabit the torrid zone, the continent abounds with them ten degrees more north, particularly as far as the river *Neus* in *North Carolina*, in the latitude of about 33, beyond which I have never heard of any, which latitude nearly answers to the northermost parts of Africa, where they are likewise found. They frequent not only salt rivers near the sea, but streams of fresh water in the upper parts of the country, and in lakes of salt and fresh water, on the banks of which they lie lurking among reeds, to surprise cattle and other animals. In Jamaica, and many parts of the continent, they are found about twenty foot in length: they cannot be more terrible in their aspect than they are

formidable and mischievous in their natures, sparing neither man nor beast they can surprise, pulling them down under water, that being dead, they may with greater facility, and without struggle or resistance, devour them. As quadrupeds do not so often come in their way, they almost subsist on fish; but as Providence, for the preservation, or to prevent the extinction of defenceless creatures, hath in many instances restrained the devouring appetites of voracious animals, by some impediment or other, so this destructive monster, by the close connexion of his vertebræ, can neither swim nor run any way than strait forward, and is consequently disabled from turning with that agility requisite to catch his prey by pursuit: therefore they do it by surprise in the water as well as by land; for effecting which, Nature seems in some measure to have recompensed their want of agility, by giving them a power of deceiving and catching their prey by a sagacity peculiar to them, as well as by the outer form and colour of their body, which on land resembles an old dirty log or tree, and in the water frequently lies floating on the surface, and there has the like appearance, by which, and his silent artifice, fish, fowl, turtle, and all other animals are deceived, suddenly catched and devoured."

"Carnivorous animals get their food with more difficulty and less certainty than others, and are often necessitated to fast a long time, which a slow concoction enables them to endure: reptiles particularly, by swallowing what they eat whole,

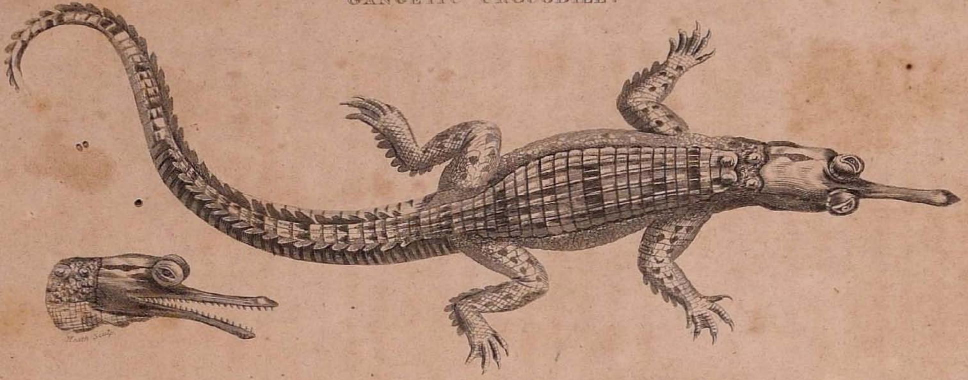
digest slowly, eat seldom, and live long without food. Wolves are said to gorge themselves with mud, to supply the want of better food. For the like cause many Alligators swallow stones and other substances, to distend and prevent the contraction of their intestines when empty, and not to help digestion, which they seem in no need of. For in the greater number of many I have opened, nothing has appeared but clumps of *lightwood* and pieces of pine tree coal, some of which weighed eight pounds, and were reduced and wore so smooth from their first angular roughness, that they seemed to have remained in them many months. They lay a great number of eggs at one time, in the sandy banks of rivers and lakes, which are hatched by the heat of the sun without further care of the parents. The young, as soon as they are disengaged from their shells, betake themselves to the water, and shift for themselves; but while young they serve as a prey not only to ravenous fish, but to their own species. It is to be admired that so vast an animal should at first be contained in an egg no bigger than that of a turkey."

"In South Carolina they are very numerous, but the northern situation of that country occasions their being of a smaller size than those nearer the line, and they rarely attack men or cattle, yet are great devourers of hogs. In Carolina they lie torpid from about October to March, in caverns and hollows in the banks of rivers, and at their coming out in the spring, make an hideous bel-

lowing noise. The hind part of their belly and tail are eat by the Indians. The flesh is delicately white, but has so perfumed a taste and smell that I never could relish it with pleasure."

According to the observations of Mons. de la Borde, as related by the Count de Cepede, it appears that the Alligators in South America deposit their eggs, like the turtles, at two or three different periods, at the distance of some days from each other; laying from twenty to about four-and-twenty eggs each time. Mons. de la Borde adds, that those of Cayenne and Surinam are observed to raise a little hillock towards the banks of the river they frequent, and hollowing it out in the middle, to amass together a heap of leaves and other vegetable refuse in which they deposit their eggs, and covering them with their leaves, a fermentation ensues, by the heat of which, joined to that of the atmosphere, the eggs are hatched. The time at which the Alligators about Cayenne begin to lay their eggs, is the same with that in which the turtles also deposit theirs, viz. the month of April. Both the Alligator and the Crocodile are supposed to be very long-lived animals, and their growth is extremely slow.

GANGETIC CROCODILE.



Heath Sculp.

1801 Dec.r 1 London Published by G.Kearsley Fleet Street.

## GANGETIC CROCODILE.

Lacerta Gangetica. *L. maxillis elongatis teretibus subcylindricis. cauda superne cristis binis in unam confluentibus horrida. Lin. Syst. Nat. Gmel. p.* 1057. *Gronov. Gazoph.* 2. *p.* 11.

Lizard with elongated subcylindric jaws, and tail furnished above with two crests coalescing into one towards the extremity.

Jun.? *Crocodilus ventre marsupio donatus, faucibus merganseris rostrum æmulantibus. Edw. Act. Angl.* 49. *p.* 369. *t.* 19.

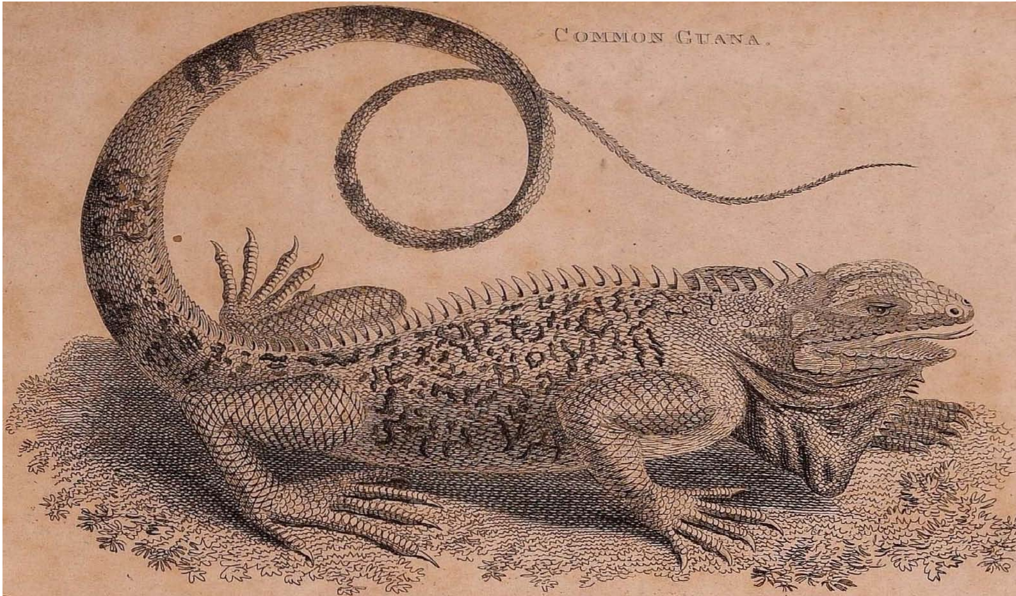
Gangetic, or Indian Crocodile.

The Gangetic Crocodile is so strikingly distinguished both from the Nilotic and the Alligator by the peculiar form of the mouth, that it is hardly possible, even on a cursory view, to confound it with either of the former; the jaws being remarkably long, narrow, and perfectly strait, and the upper mandible terminated above by an elevated tubercle. In the general form and colour of the body and limbs it resembles the common Crocodile, but the number of transverse zones or bands formed by the rows of scales, on the back, is greater than in that species. In a very young state the length and narrowness of the snout are still more conspicuous than in the full-grown animal. The teeth are nearly double the number of those of the common Crocodile, and are of equal size throughout the whole length of the jaws. This species is a native of India, and is principally seen in the Ganges, where it arrives at a size at least equal to the Nilotic Crocodile, and is of similar manners. It seems to have been first no-

ticed as a distinct species by Edwards, who, in the Philosophical Transactions for the year 1759, gave an accurate description, accompanied by a good figure, of a young specimen preserved in spirits, and which was received by Dr. Mead from Bengal. This specimen had a remarkable aperture on the skin of the abdomen, which was at that time considered as forming a kind of specific character, but which was probably nothing more than the passage by which the umbilical vessels of the animal were attached during its confinement in the egg. It was however supposed by Edwards to have been the opening of a ventral pouch destined for the reception of the young, as in the Opossum. The general structure of the feet is similar to that of the common Crocodile, except that the third and fourth toes only, and this on the fore as well as hind feet, are connected together by a web. "The eyes," says Edwards, "are very prominent, and seem to be so constructed that they may be carried above the water, while the rest of the animal is wholly under water, in order to watch its prey on the surface, or on the banks and shores of rivers."

In the British Museum is a specimen of this animal measuring about eighteen feet. In the Leverian Museum is an elegant and well-preserved specimen of much smaller size, viz. about three feet in length.

# COMMON GUANA.



Heath sculp.

1801 Jan.y 1 London Publish'd by G. Kearsley Fleet Street.

## *Guanas with serrated dorsal crest, &c.*

### COMMON GUANA.

Lacerta Iguana. *L. cauda tereti longa, dorso serrato, crista gulæ denticulata.*

Lizard with long round tail, serrated back, and denticulated gular crest.

Lacerta Iguana. *L. cauda tereti longa, sutura dorsali dentata, crista gulæ denticulata. Lin. Syst. Nat. p.* 366.

Lacerta Leguan. *Bont. Jav.* 56.

Lacertus Senembi & Iguana. *Raj. Quadr.* 265.

Leguana. *Seb. Mus.* 1. *t.* 95, 96, 97, *&c.*

The Great American Guana.

Though the Lizard tribe affords numerous examples of strange and peculiar form, yet few species are perhaps more eminent in this respect than the Guana, which grows to a very considerable size, and is often seen of the length of three, four, and even five feet. It is a native of many parts of America and the West-Indian islands, and is also said to occur in some parts of the East Indies. Its general colour is green, but with much variation in the tinge of different individuals: it is generally shaded with brown in some parts of the body, and sometimes this is even the predominating colour. The back of the Guana is very strongly serrated; and this, together with the gular pouch, which it has the power of extending or inflating occasionally to a great degree, gives a formidable appearance to an animal otherwise harmless. It inhabits rocky and woody places, and feeds on insects and vegetables. It is itself

reckoned an excellent food, being extremely nourishing and delicate; but is observed to disagree with some constitutions. The common method of catching it is by casting a noose over its head, and thus drawing it from its situation; for it seldom makes an effort to escape, but stands looking intently at its discoverer, inflating its throat at the same time in an extraordinary manner. The Guana has been described and figured by several authors, but the most expressive representations are those given by Seba.

"Guanas," says Catesby, "are of various sizes, from two to five feet in length; their mouths are furnished with exceeding small teeth, but their jaws armed with a long beak, with which they bite with great strength: they inhabit warm countries only, and are rarely to be met with any where north or south of the tropics. Many of the Bahama islands abound with them, where they nestle in hollow rocks and trees: their eggs have not a hard shell, like those of Alligators, but a skin only, like those of a turtle; and are esteemed a good food. They lay a great number of eggs at a time, in the earth, which are there hatched by the sun's heat. These Guanas are a great part of the subsistence of the inhabitants of the Bahama islands, for which purpose they visit many of the remote *Kayes* and islands in their sloops to catch them, which they do by dogs trained up for that purpose, which are so dextrous as not often to kill them, which if they do, they serve only for present spending; if otherwise, they sew up their

mouths, to prevent their biting, and put them into the hold of their sloop till they have catched a sufficient number, which they either carry alive for sale to Carolina, or salt and barrel up for the use of their families at home. These Guanas feed wholly on vegetables and fruit, particularly on a kind of fungus growing at the roots of trees, and on the fruits of the different kinds of *Annonas.* Their flesh is easy of digestion, delicate, and well-tasted: they are sometimes roasted, but the more common way is to boil them, taking out the leaves of fat, which are melted and clarified, and put into a calabash or dish, into which they dip the flesh of the Guana as they eat it. It is remarkable that this fat, which adheres to the inside of the abdomen, imbibes the colour of the fruit the animal eats last, which I have frequently seen tinged of a pale red, yellow, or sometimes of a purple colour, which last was from eating the *Prunus maritima,* which fruit, at the same time, I took out of them. Though they are not amphibious, they are said to keep under water above an hour. When they swim, they use not their feet, but clap them close to their body, and guide themselves with their tails: they swallow all they eat whole. They cannot run fast, their holes being a greater security to them than their heels. They are so impatient of cold, that they rarely appear out of their holes but when the sun shines."

"The Guana," says Browne, in his Natural History of Jamaica, "like most of the tribe, lives a very considerable time without food, and changes

its colour with the weather, or the native moisture of its place of residence. I have kept a grown Guana about the house for more than two months: it was very fierce and ill-natured at the beginning, but after some days it grew more tame, and would, at length, pass the greatest part of the day upon the bed or couch, but it went out always at night. I have never observed it to eat any thing, except what imperceptible particles it had lapped up in the air; for it frequently threw out its forked tongue, like the Cameleon, as it walked along. The flesh of this creature is liked by many people, and frequently served up in fricasees at their tables, in which state they are often preferred to the best fowls. The Guana may be easily tamed while young, and is both an innocent and beautiful creature in that state."

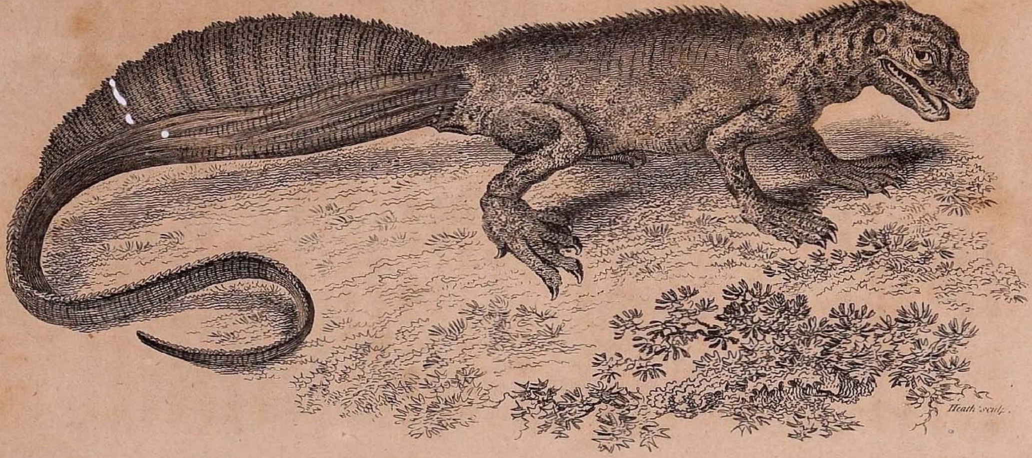
The female of this species is said to be smaller than the male, and of brighter colours.

### VAR.?

Horned Guana. Le Lezard cornu. *Cepede ov. 2. p. 493.*

This, according to Cepede, its first describer, is so much allied to the common Guana, that it might almost be supposed a variety of that species, which it resembles in size and general proportions, serrated back, form of scales, &c. but is destitute of the gular pouch or crest, while in front of the head, between the eyes and nostrils, are seated four rather large scaly tubercles, be-

# Amboina Guana.




1802. Jan.y 1. London Publish'd by G. Kearsley Fleet Street.

hind which rises an osseous conical horn or process, covered by a single scale. This Lizard is a native of the island of St. Domingo, where it is said to be very common. Mons. Cepede informs us that he had seen two specimens, one of which wanted the large tubercles on each side the head.

## AMBOINA GUANA.

Lacerta Amboinensis. *L. cauda tereti longa, pinna caudali radiata, sutura dorsali dentata. Schlosser de lacert. Amboinens.* 1768.

Long-tailed variegated Lizard, with radiated tail-fin, and dentated dorsal suture. *Nat. Miscell. pl.* 403.

The variegated Amboina Lizard.

This highly remarkable species appears to have been first described by Valentyn, in his account of the East Indies, and particularly of the island of Amboina, where it is principally found; but a much more accurate description, accompanied by an exquisite figure, was published in the year 1768 by Dr. Albert Schlosser.

This Lizard appears in some degree to form a connecting link between the Guana and the Basilisk. It grows to the length of three feet, or even more, and is at once remarkable for the singularity of its appearance and the beauty of its colours. The head is rather large than small, somewhat tuberculated above, and covered with small roundish scales: the upper jaw obtuse and

somewhat inclining to a square termination; the lower is rounded: the scales surrounding the lips are larger than on other parts of the head: the eyes are moderately large; the foramina of the ears conspicuous; the mouth wide; the teeth sharp and numerous; the tongue large, fleshy, and slightly emarginated at the tip: the skin about the neck, throat, and breast, is loose or wrinkled; the body is covered with very small oblong or somewhat square scales, interspersed with much larger rounded or oval ones, scattered here and there over the sides and about the shoulders and thighs: the tail is very long, of a rounded form, and furnished above with a very broad, rising crest or upright process, scolloped, or sinuated on the edge by slight subdivisions, and internally strengthened by several bony radii resembling those in the fins of fishes: the scales on this part of the tail are larger than on the other parts: from the back of the head to the extremity of the tail runs a continued series of denticulated serratures, gradually diminishing in size as they approach the tip of the tail: the legs are moderately long, stout, and scaled in a similar manner with the body: the feet are large and strong, and are each furnished with five toes, edged on their sides with a denticulated or pectinated skin, and terminated by strong, curved claws.

The head and neck of this animal are green, variegated by transverse whitish undulations: the back and tail brown, with a slight blueish or

purplish cast; the sides and abdomen pale-brown or greyish, spotted by the round white scales before mentioned.

This Lizard, according to Valentyn, resides in the neighbourhood of rivers and other fresh waters. It is frequently observed on the banks of rising grounds, as well as on the lower kind of shrubs which grow near the water, but does not ascend the taller trees. When disturbed by the approach of men, dogs, &c. it instantly plunges into the water, and hides itself beneath the rocks or stones under the banks, from whence, however, it may be easily taken; and, when caught, does not attempt to bite, or defend itself, but seems, as it were, stupefied. It may also be caught by a noose or snare. It lays its eggs in the sand; especially near the small islets of the rivers it frequents: these eggs, while in the belly of the animal, are of a yellow colour, and are disposed into two long groupes or clusters, but when laid are white, and of an oblong shape.

The male and female differ considerably in size and distribution of colours; the female being of a more obscure tinge than the male, and having but little appearance of the crest or process on the tail. This animal is more esteemed as a food than even the common Guana, and its flesh is said to be very white, sweet, and of a penetrating odor. Valentyn, who had attended to the anatomy of the animal, informs us, that it has a small triangular heart; an oblong liver, with a round gall-bladder; small reddish lungs, slightly tinged with

lead-colour; a narrow, whitish stomach, coated, or, as it were, enveloped in fat, and large intestines, in which were discovered the berries and seeds of certain aquatic shrubs, together with some small semitransparent pebbles, and a kind of worms not unlike millepedes.

Of this curious Lizard a very fine specimen occurs in the Museum of the late Mr. John Hunter.

## BASILISK.

Lacerta Basiliscus. *L. cauda tereti longa, pinna dorsali radiata, occipite cristato. Lin. Syst. Nat. p.* 366.

Long-tailed Lizard, with radiated dorsal and caudal fin, and pointed occipital crest.

Draco arboreus volans Americanus amphibius, sive Basiliscus. *Seb. Mus.* 1. *p.* 156. *t.* 100. *f.* 1.

The Basilisk. *Nat. Misc. pl.* 142.

The Basilisk of the ancients, supposed to be the most malignant of all poisonous animals, and of which the very aspect was said to be fatal, is a fabulous existence, to be found only in the representations of painters and poets. Without citing other descriptions, it may be sufficient to quote that of Lucan, who, with true poetic licence, represents the Basilisk exerting his terrific glance in the burning deserts of Africa, and obliging the rest of the poisonous tribe to preserve an humble distance.

"Sibilaque effundens cunctas terrentia pestes,
Ante venena nocens, late sibi submovet omne
Vulgus, et in vacua regnat Basiliscus arena."

63

BASILISK.

1801 Dec.r 1. London Published by G.Kearsley, Fleet Street.

But fiercely hissing through the poison'd air
The Basilisk exerts his deathful glare:
At distance bids each vulgar pest remain,
And reigns sole monarch of his sultry plain.

But the animal known in modern natural history by this name is a species of Lizard, of a very singular shape, and which is particularly distinguished by a long and broad wing-like process or expansion continued along the whole length of the back, and to a very considerable distance on the upper part of the tail, and furnished at certain distances with internal radii analogous to those in the fins of fishes, and still more so to those in the wings of the Draco volans, or Flying Lizard. This process is of different elevation in different parts, so as to appear strongly sinuated and indented, and is capable of being either dilated or contracted at the pleasure of the animal. The occiput or hind part of the head is elevated into a very conspicuous pointed hood or hollow crest.

Notwithstanding its formidable appearance, the Basilisk is a perfectly harmless animal, and, like many other of the Lizard tribe, resides principally among trees, where it feeds on insects, &c. It has long ago been admirably figured in the work of Seba, and as it is an extremely rare species, has sometimes been considered (from the strangeness of its form) as a fictitious representation. There is, however, in the British Museum, a very fine specimen, well preserved in spirits, and which fully confirms the excellency of Seba's figure; from which, in all probability, Linnæus himself

(who never saw the animal) took his specific description. The colour of the Basilisk is a pale cinereous brown, with some darker variegations towards the upper part of the body. Its length is about a foot and half. The young or small specimens have but a slight appearance either of the dorsal or caudal process, or of the pointed occiputal crest. The Basilisk is principally found in South America, and sometimes considerably exceeds the length before mentioned, measuring three feet, or even more, from the nose to the extremity of the tail. It is said to be an animal of great agility, and is capable of swimming occasionally with perfect ease, as well as of springing from tree to tree by the help of its dorsal crest, which it expands in order to support its flight.

## GALEOTE LIZARD.

Lacerta Calotes. *L. cauda tereti longa, dorso antice capiteque postice dentato. Lin. Syst. Nat. p.* 367.

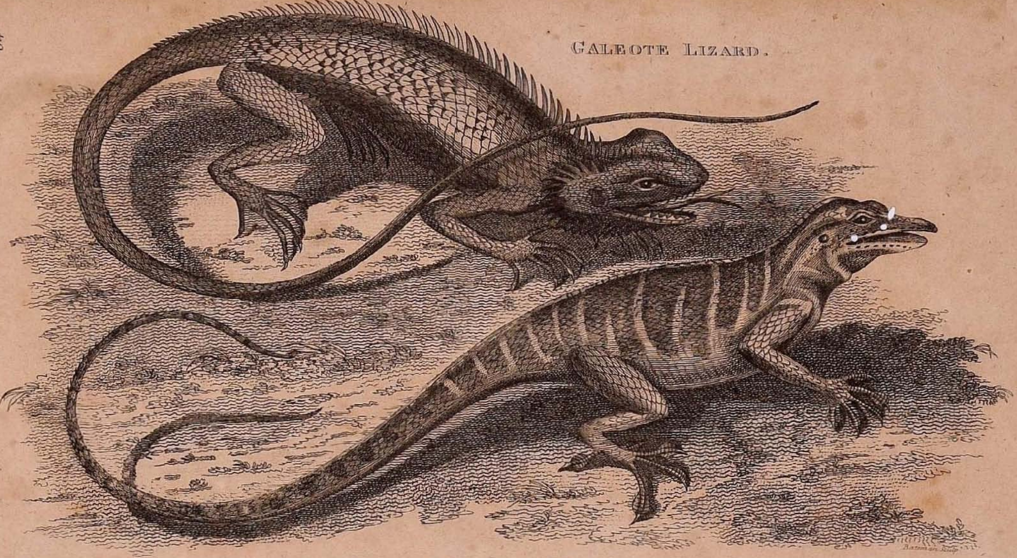
Lizard with long round tail; the back dentated on the fore part, and the head on the hind part.

Lacertus Ceilonicus amphibius, seu Leguana *Soa Ajer* dicta. *Seb.* 1. *p.* 149. *t.* 95. *f.* 3, 4.

Lacerta Ceilonica, &c. *Ascalobotes* Græcis dicta. *Seb.* 1. *p.* 146. *t.* 93. *f.* 2.

This species is considerably allied to the common Guana in habit or general appearance; but is of much smaller size, rarely exceeding the length of a foot and half from the tip of the nose to the extremity of the tail. It is also destitute

GALEOTE LIZARD.



MARBLED LIZARD.

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of the very large gular pouch, so conspicuous in that animal; instead of which it has merely a slight inflation or enlargement on that part. In colour it occasionally varies, like most of this tribe; but is commonly of an elegant bright blue, variegated by several broad, and somewhat irregular white or whitish transverse bands on each side of the body and tail. From the hind part of the head, to the lower part of the back, runs a strongly serrated crest, the divisions of which are long and sharp-pointed: the region of the head, on each side, behind the eyes and ears, and more particularly round the latter, is furnished with several serratures of a similar appearance to those on the back; forming one of the principal characteristics of this species. The scales are larger in proportion than those of the Guana, sharp-pointed, and marked by a pretty strong carina: the limbs are rather slender than stout, and the toes more remarkably so: the tail exceeds the body very considerably in length, and terminates acutely.

This species has been well represented in the work of Seba, who has figured several varieties, differing in size and colour. It is a native of the warmer regions both of Asia and Africa, and is found in many of the Indian islands, and particularly in Ceylon, in which it is common. According to the Count de Cepede it is also found in Spain, &c. and is said by that author to wander about the tops of houses in quest of spiders; and he observes, that it is even reported to prey on

rats, and to fight with small serpents in the manner of the common Green Lizard and some others.

## AMERICAN GALEOTE.

Lacerta Agama. *L. cauda tereti longa, collo supra capiteque postice aculeato, occipitis squamis reversis. Lin. Syst. Nat. p.* 367.
Lizard with long round tail; the neck above and the head behind aculeated; the scales of the hind-head reversed.
Salamandra Americana, &c. *Seb.* 1. *p.* 169. *t.* 107.

This is in some respects allied to the Calotes, but differs in wanting the very conspicuous dorsal serratures, instead of which it has only a small denticulated carina on that part: the head is larger in proportion, and is covered on the back part with elongated or sharp-pointed scales, some of which are more or less reversed at their extremities: the body is coated with small scales, with several larger ones of a rounded form scattered here and there on the sides: the tail is long, and verticillated with stages of sharp-pointed scales: the whole animal is of a less slender and elegant aspect than the preceding, and is commonly of a brown or lead-coloured cast, clouded here and there with deeper and lighter variegations. It is a native of South America and some of the West-Indian islands, and sometimes grows to a very considerable size. The male is said to differ from the female in having the dorsal crest composed of longer spines, extending almost to the lower part

BROAD-TAILED LIZARD.

*Heath sculp.*

MURICATED LIZARD.

*1802 Jan 1 London Publish'd by G Kearsley Fleet Street.*

of the back, whereas in the female they scarce reach farther than the shoulders.

VAR.?

Lacerta Muricata. *L. cauda tereti longa, corpore griseo, squamis carinatis mucronatis.*

*Muricated Lizard.* L. with long rounded tail, body greyish, scales carinated and sharp-pointed. *White's Voy. p.* 244. *pl.* 31. *f.* 2.

THIS variety, or the Brown Australasian Lizard, can hardly be considered as specifically distinct, though I have myself described it as such in Mr. White's Journal of a Voyage to New South Wales. It measures more than a foot in length*; its general colour being a brownish grey, the whole upper part marked with transverse dusky bars, most conspicuous on the legs and tail, which latter is very long: the scales on every part of the animal are of a sharp form, and furnished with a prominent line on the upper surface: towards the back part of the head they almost run into a kind of weak spines: the feet are furnished with moderately strong and sharp claws. The chief difference between this and the first described kind, exclusive of colour, seems to be the defect of the reversed scales on the back part of the head.

* Specimens have sometimes been seen of much larger size.

## BICARINATED LIZARD.

Lacerta Bicarinata. *L. cauda compressa, supra bicarinata mediocri, dorso quadrifariam carinato-striato. Lin. Syst. Nat. p.* 361.

Lizard with four rows of strong carinated scales on the back, and tail of moderate length.

La Dragonne. *Cepede ovip.* 1. *p.* 243. *pl.* 16.

THIS species, which in the work of the Count de Cepede* seems in some degree confounded with the Dracæna, is in general of much smaller size, the specimen figured in the work above mentioned measuring but two feet five inches from the tip of the snout to the end of the tail. In its habit it bears some resemblance to a Crocodile in miniature, having hard, tuberculated, and carinated scales on the upper parts of the body, and two rows of scales more prominent than the rest, running from the upper part of the back to the tail, at which part they become confluent, and are continued in the form of a serrated crest, to the tip: the head is small; the mouth wide; the snout sharpish; the teeth pretty numerous; those in front of the mouth small, those situated backwards larger, and more obtuse; the tongue forked. The colour of this animal, according to Cepede, is a reddish brown more or less tinged with

* Lacertam is (Cepede) *dracænam* Linnæi nobis promittit et pingit in tab. 16. quæ plane est *bicarinata* Linnæi, cujus pictura accuratâ hucusque caruimus: quapropter imprudentiæ Galli gratias agendas potius quam levitatem ejus taxandam esse censeo. —*Schneid. Amph. Phys. Sp. Alt. p.* 40.

greenish in some parts. It is a native of South America, where, like the Guana, and some other Lizards, it is occasionally used as a food: the eggs also are said to be much esteemed for the same purpose. It frequents woody and marshy regions. Mons. de la Borde, a correspondent of the Count de Cepede, kept one alive for some time: it often continued in the water for hours together, hiding itself when disturbed or affrighted, but delighted in coming out occasionally, and basking in the sun.

VAR.?

In Brasil is said to be found a large lizard, much resembling the Crocodile, which readily climbs trees, and seems, according to the Count de Cepede, to be no other than a variety of the preceding; from which it differs in being of a darker colour, and having shorter claws. It is called by the title of *Ignarucu.*

The L. bicarinata is described by Linnæus, in the Systema Naturæ, as a small species. We must, therefore, either suppose Linnæus to have described a very young or small specimen, or the species above described to be in reality different from the bicarinata, though marked by similar characters: or it is even possible that it may be a sexual difference of the Dracæna, with which the Count de Cepede appears to confound it by quoting the figure of Seba as representing the same animal.

## MONITORY LIZARD.

Lacerta Monitor. *L. cauda ancipiti, corpore mutico nigro, maculis albis ocellatis.*

Black Lizard, with very long compressed carinated tail, and body marked by transverse rows of white ocellated spots.

Lacerta Monitor. *Lin. Syst. Nat. p.* 360.

Lacerta Amboinensis elegantissima. *Seb.* 1. *p.* 147. *t.* 93. *f.* 1, 2, 3.

Lacerta major *Tilcuetzpallin* in Nova Hispania dicta. *Seb.* 1. *p.* 152. *t.* 97. *f.* 2. L. Tupinambis. 2. *t.* 86. L. Tejuguacu. 2. *t.* 105. L. Mexicana. 2. *t.* 30. L. Ceilonica. 2. *t.* 49.

Le Tupinambis. *Cepede ovip. p.* 251. *pl.* 17.

The Monitor, or Monitory Lizard, is one of the most beautiful of the whole tribe, and is also one of the largest; sometimes measuring not less than four or five feet from the nose to the tip of the tail. Its shape is slender and elegant, the head being small, the snout gradually tapering, the limbs moderately slender, the tail laterally compressed, and insensibly decreasing towards the tip, which is very slender and sharp. Though the colours of this Lizard are simple, yet such is their disposition, that it is impossible to survey their general effect without admiration. In this respect, however, the animal varies, perhaps, more than most others of its tribe. It is commonly black, with the abdomen white, the latter colour extending to some distance up the sides, in the form of several pointed bands, besides which the whole body is generally ornamented by several transverse bands consisting of white annular spots, while the head

MONITORY LIZARD.

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is marked with various streaks of the same colour, the limbs with very numerous round spots, and the tail with broad, distant transverse bands. In others the spots forming the lateral bands are simple instead of annular; and in others the annuli or white rings are themselves composed of small white spots, which are likewise often scattered here and there over the black ground-colour. The ground-colour in some, instead of being black, is of a deep ferruginous brown. All, however, agree so far in the general disposition of the variegations, that it is not easy to mistake the species for any other.

This elegant animal is a native of South America, where it frequents woody and watery places, and, if credit may be given to the reports of some authors, is of a disposition as gentle as its appearance is beautiful. It has even gained the title of Monitor, Salvaguarda*, &c. from its pretended attachment to the human race, and it has been said that it warns mankind of the approach of the Alligator by a loud and shrill whistle.

VAR.?

Lacerta Varia. Variegated Lizard. *White's Journ. of Voy. to New South Wales, p.* 253. *pl.* 38. *Nat. Misc. pl.* 83.

So nearly does this animal approach to the former, that it may be doubted whether it should not

* These names are also applied by some authors to different species, as the *Teguixin*, &c.

be considered as a variety rather than a truly distinct species. It differs, however, in colour, and in some degree in the disposition of its variegations, which are generally pale yellow instead of white, and in some specimens even of a bright gold-colour. The markings on the body also, instead of the general ocellated pattern of the preceding, consist rather of rounded or slightly subangular spots and variegations: the limbs, as in the preceding, are marked either with numerous bands or spots, and the tail is banded: the claws are very large and strong. This Lizard is a native of New Holland.

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## SPINE-TAILED LIZARD.

Lacerta Acanthura. *L. gula subtus plicata, corpore squamis minutis tecto, cauda longa squamis carinatis spinoso-trifidis verticillata.*

Lizard with the throat plaited beneath; the body covered with minute scales; the tail long, and verticillated with carinated triple-spined scales.

A SPECIMEN of this animal is preserved in the British Museum, where it is distinguished by the title above mentioned. Its length is about a foot and half, but it probably grows to a considerably larger size. The head, which resembles that of the *Ameiva* and *Teguixin* in shape, is covered with somewhat small subhexagonal scales, and is very distinctly marked off, as it were, from the body: beneath the throat is a very conspicuous transverse

plait, as in the Ameiva: the whole skin also about the neck, throat, and beginning of the sides, is, in this specimen at least, remarkably lax, and it is probable that in the living animal the skin beneath the throat may have a kind of pouched appearance, though entirely without any middle carina on that part: the other parts of the body, both above and below, are covered with very small scales; of which, however, those of the under parts are rather larger than those of the upper. From the beginning of the neck to the origin of the tail runs a series of short denticulations, forming a serrated crest of very slight elevation: the tail is very long, and strongly marked into numerous verticilli or rings, composed of very long and very strongly carinated scales; each terminating in a lengthened point and thus causing a spiny appearance throughout the whole length of that part: the feet are all pentadactylous, and the toes rather long; especially those of the hind feet: the claws strong and sharp. The colour of this species on the upper parts is glaucous, variegated with a few small and somewhat indistinct clouds and marblings of a whitish cast: the tail and under parts are of a pale or yellowish white colour.

This species seems much allied to the *Quetzpaleo* of Seba, 1. p. 152. t. 97. f. 4. which is generally supposed to represent the *Azurea* of Linnæus.

### SHARP-TAILED LIZARD.

Lacerta Lophura. *L. corpore squamis inæqualibus vestito, dorso serrato, cauda longa compresso-carinata.*

Lizard with the body covered by dissimilar scales; the back serrated; the tail long, and compresso-carinated.

A VERY large species: at first view much resembling the *Teguixin* in size, colour, &c. but is coated with scales of dissimilar size on different parts; large, rounded, and oval ones being scattered here and there among the smaller: tail long, carinated above, compressed, and sharp-pointed: both back and tail serrated throughout their whole length. In the British Museum, and in that of Dr. William Hunter.

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### DRACÆNA LIZARD.

Lacerta Dracæna. *L. cauda supra denticulata longa, corpore lævi, digitis subæqualibus. Lin. Syst. Nat. p.* 360.

Large long-tailed Lizard, with smooth body and tail denticulated along the upper part.

Lacerta Americana maxima *Cordylus* & *Caudiverbera* dicta. *Seb.* 1. *p.* 158. *t.* 101.

THE Dracæna may be considered as one of the largest of the Lizard tribe; much exceeding the Guana in the general size of the body, as well as in the proportion of its limbs and tail. It is a native of several parts of South America, as well as of some of the Indian islands, and is said to be

DRACŒNA LIZARD.

Heath Sculp.

Dec. 1. London Published by G. Kearsley, Fleet Street.

more esteemed in some countries as an article of food than the Guana. The head is small, and of an elegant form, the snout tapering in such a manner as to bear a resemblance to that of an Italian greyhound: the teeth are small and numerous, and the tongue forked: the openings of the ears large, and surrounded by a well-defined scaly border: the proportions of the neck and limbs are elegant though strong, and the body is moderately thick: the tail is of a great length, though in a fine specimen, preserved in the Leverian Museum, it is not quite so long in proportion, as represented by Seba, whose excellent figure is copied in the present work. The colour is brown, with a slight cast of chesnut, palest on the abdomen and insides of the limbs; the outsides of which are marked by numerous, small, pale, or yellowish spots. The whole animal is smooth, or destitute of prominences on the skin, which is covered with small, ovate, and, in some parts, slightly subquadrate scales, largest on the outsides of the limbs, the back, and the abdomen: along the upper edge of the tail runs a continued series of short, triangular denticulations, as shewn in the engraving: the feet are moderately strong, and the toes are armed with sharp, crooked claws. This animal has been described by some of the older writers on natural history, under the name of *Cordylus*, or Cordyl; a name which has also been applied to different species.

VAR.?

In the Leverian Museum is a specimen, which differs in being of a very pale brown colour, variegated on the body and tail by several deep brown transverse bands, among which, as well as on the abdomen and limbs, are interspersed many smaller variegations and spots of similar colour: the tail much shorter than in the preceding, though of similar thickness or relative proportion to the body.

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## SUPERCILIOUS LIZARD.

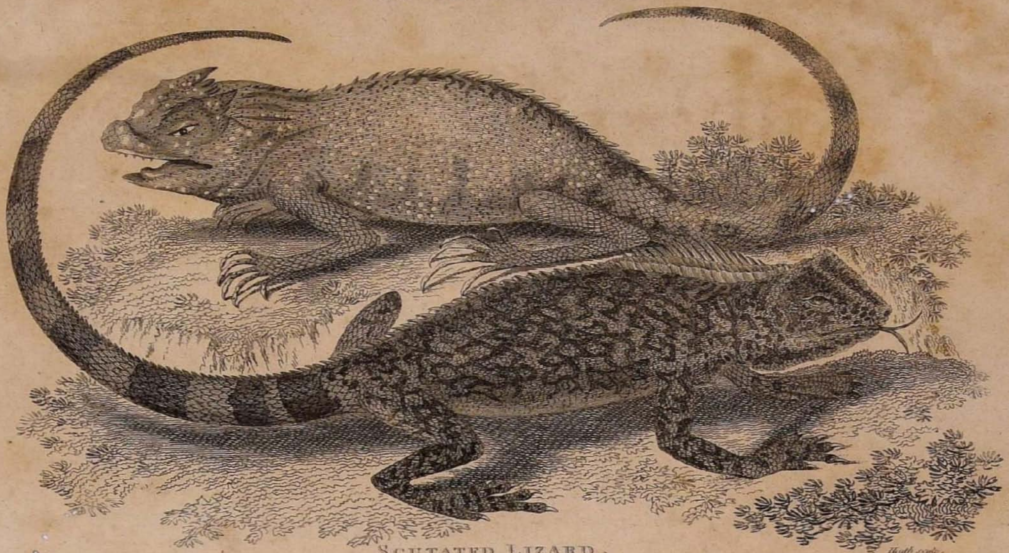
Lacerta Superciliosa. *L. cauda carinata, dorsa superciliisque squamis ciliatis. Lin.-Syst. Nat. p.* 360.

Lizard with carinated tail; the back and eyebrows ciliated with upright lanceolated scales.

Lacerta Ceilonica cristata & pectinata. *Seb.* 1. *p.* 147. *t.* 94. *f.* 1.

This Lizard, in its general appearance, is somewhat allied to the Guana, and more especially to the horned Guana of Cepede; having, like that animal, the appearance of a pair of sharp-pointed, horn-like processes above and beyond each eye, between which are also situated a certain number of aculeated scales; while from the back of the head to the tip of the tail runs a series of short or slightly elevated serratures: the scales about the edges of the mouth and on the tip of the nose are,

SUPERCILIOUS LIZARD.



SCUTATED LIZARD.

Heath sculp.

1802 Jan.^y 1 London Publish'd by G. Kearsley Fleet Street.

as usual in most Lizards, larger than on the rest of the animal: the tongue is large and rounded: the body is covered with small subacuminated scales, those on the tail being somewhat larger: the limbs are rather slender, and the tail of moderate length. Seba figures two specimens of this Lizard, one of which has several rounded scales, of different sizes, interspersed here and there on the sides of the body, and which are not visible on the other.

This is an Asiatic species, and is also found in the Indian islands. The colour of one of Seba's specimens, both of which, he informs us, came from Amboina, was pale yellow, tinged with bluish variegations: the other with brown and whitish ones. The size is that of a small Guana, measuring from twelve to about sixteen inches from the nose to the tip of the tail.

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## SCUTATED LIZARD.

Lacerta Scutata. *L. cauda compressa mediocri, sutura dorsali dentata, occipite bimucronato. Lin. Syst. Nat. p.* 360.

Lizard with compressed tail of middling length, dentated dorsal suture, and two pointed processes at the back of the head.

Salamandra prodigiosa Amboinensis scutata. *Seb.* 1. *p.* 173. *t.* 109. *f.* 3, 4.

The L. scutata is allied in shape, size, and general appearance, to the former, but has a somewhat larger head in proportion. It is principally distinguished by a row of scales more elevated

than the rest, which pass over each eye; a sort of ridge or prominent edge being continued from those parts as in the Chameleon, towards the back of the head, where they unite, and are continued in form of a short denticulated crest, down the middle of the back to the beginning of the tail, which is much longer than the body. The body is covered with moderately small acuminated scales; the limbs and tail with somewhat larger ones. The colour of this Lizard is brown; more or less deep in different individuals, and clouded or mottled with a few variegations of a still deeper cast. It is a native of the island of Ceylon.

## SMOOTH-CRESTED LIZARD.

Lacerta Principalis. *L. cauda subcarinata, crista gulæ integerinea, dorso lævi. Lin. Syst. Nat. p.* 360.

Lizard with subcarinated tail, plain-edged gular crest, and smooth back.

Lacerta Ceilonica maculis albis & nigris notata. *Seb.* 2. *p.* 32. *f.* 3.

Le Large-Doigt. *Cepede ovip. p.* 263.

The L. Principalis is rather a small species, scarce exceeding the length of eight or nine inches from the nose to the extremity of the tail. Its general form is rather slender; the head small; the snout taper; the back smooth, or destitute of serratures, a sharpened carina only running along the upper part of the tail: the throat is furnished with a gular crest which is of a smooth or rounded

outline: the scales on the whole animal are very small: the tail long, and the toes, as in some other lizards, somewhat dilated on each side towards their extremities. The colour of the animal is blue. It is a native of South America.

VAR. ?

Lacerta bimaculata. *L. cauda carinata denticulata, corpore duplo longiore, digitis palmarum plantarumque lobatis. Sparm. Nov. Act. Stoch.* 3. *t.* 4. *Lin. Syst. Nat. Gmel. p.* 1059.

THIS is, according to Mr. Schneider, no other than a variety of the *Principalis*, of a blue colour, spotted here and there with black, and having two larger spots of that colour over the shoulders. It is a native of St. Eustatia, and is also met with in Pensylvania. It is said to have a hissing or whistling voice.

VAR. ?

Le Roquet. *Cepede ovip. p.* 397. *pl.* 27.

THIS appears much allied to the Principalis, which it resembles in size and habit, as well as in having the last joints of the toes somewhat enlarged or lobed on each side, but is destitute of the gular crest. In its manners it is said to resemble the European green lizard, frequenting gardens, among trees, &c. moving nimbly about, and commonly holding its tail in an elevated position, curving over its back. It feeds on the

smaller insects, of which it destroys great multitudes. When tired with exercise, or oppressed with heat, it is said to hold open its mouth, and pant, with exserted tongue, in the manner of a dog. Its colour is a pale yellowish brown, with deeper and lighter variegations.

## STRUMOUS LIZARD.

Lacerta Strumosa. *L. cauda tereti longa, pectore gibbo protenso. Lin. Syst. Nat. p.* 368.
Lizard with long round tail, and gibbose projecting breast.
Salamandra Mexicana strumosa. *Seb.* 2. *t.* 20. *f.* 4.

This is a small species, about the size of the *Principalis*, and is entirely smooth or destitute of any dorsal carina or serratures, but is furnished with a large, flattish gular pouch or crest of a pale red colour, while the rest of the animal is of a pale blueish grey, with a few slight variegations of a more dusky tinge: the tail is much longer than the body, and is of similar colour, with a few obscure transverse bands: the limbs are moderately slender, and the whole habit is in some degree similar to that of the *Principalis*. It is a native, according to Seba, of South America.

## MARBLED LIZARD.

Lacerta Marmorata. *L. cauda tereti longa, gula subcristata antice dentata, dorso lævi.* *Lin. Syst. Nat. p.* 368.

Lizard with long round tail, subcristated throat, and smooth back.

Lacerta Chalcitica marmorata ex Gallæcia. *Seb.* 2. *p.* 79. *t.* 76. *f.* 4. ?

Le Marbré. *Cepede ovip. p.* 394. *pl.* 26.

The Marbled Lizard is a moderately small species, measuring about a foot in total length, or something more: its habit is slender and elegant: the head rather small; the snout taper; the limbs slender, and the tail very long in proportion. The whole body is covered with small ovate scales, the back having a slight or scarce perceptible carina of rather sharper scales than on the other parts, and which become rather more apparent as they approach the upper part of the tail: beneath the throat is a slightly protuberant crested and somewhat dentated skin: the feet are formed nearly as in the *Principalis*, having slender toes, with the ultimate joints a very little dilated. The colour of this species is pale blue, variegated with undulating transverse fasciæ of a whitish cast: the belly is of a pale rose-colour. It is a native of America and the West-Indian islands, and, according to Linnæus, of India. The gular protuberance in the female is not perceptibly denticulated: the tail in both is marked by three or

four slightly rising or carinated longitudinal lines. This species is well figured in the work of the Count de Cepede.

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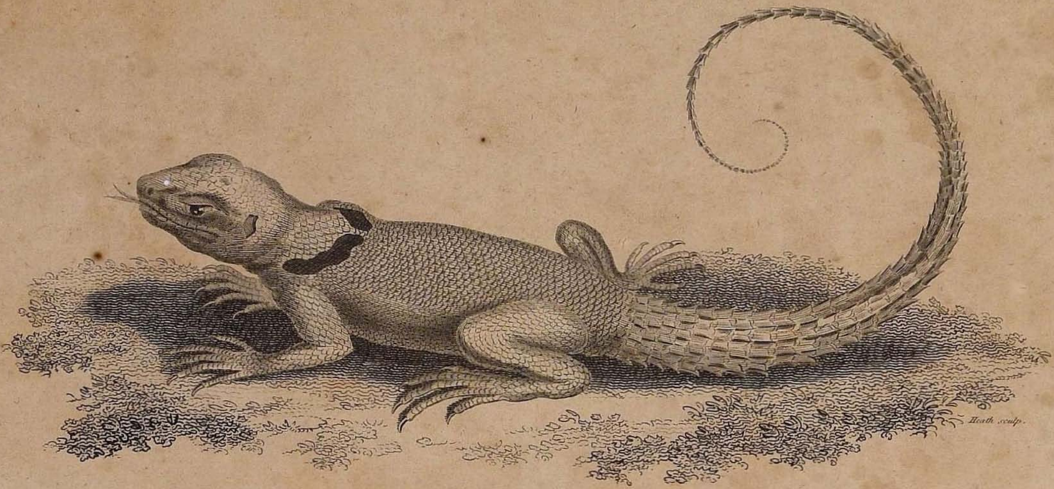
## UMBRE LIZARD.

Lacerta Umbra. *L. cauda tereti longa, nucha subcristata, occipite calloso, dorso striato. Lin. Syst. Nat. p.* 367.

Lizard with long, round tail, neck subcristated above, hind-head callous, and back striated.

Iguana sepiformis. *Laur. Amph. p.* 47.

A MIDDLE-SIZED, or rather small species: native of North America: first described by Linnæus in the Museum Adolphi Friderici. Body covered with scales carinated and pointed at the tips, and down the back runs a carina formed by similar scales, somewhat more strongly marked: head of an obtuse and somewhat rounded form, and marked on the hind part by a large, callous, bare spot: beneath the throat a strong plait or furrow: body clouded with deeper and lighter shades, and the tail of considerable length. This seems a species very little known.



Heath sculp.

AZURE LIZARD.

1802 Jan.y 1 London Publish'd by G Kearsley Fleet Street.

*Cordyles, with either denticulated or spiny scales on the body or tail, or both.*

## PELLUMA LIZARD.

Lacerta Pelluma. *L. cauda verticillata longiuscula, squamis rhomboideis. Lin. Syst. Nat. Gmel. p.* 1060. *Molin. Chil. p.* 190.
Lizard with longish verticillated tail, and rhomboid scales.

This is one of the middle-sized Lizards; the total length being nearly two feet, and the length of the body and tail nearly equal. It is a native of Chili, where it is said to inhabit hollows under ground. It is covered on the upper parts with very minute scales, and is beautifully variegated with green, yellow, blue, and black: the under parts are of a glossy yellowish green: the tail long and verticillated by rows of rhomboid scales. The skin of this Lizard is said to be used by the Chilians for the purpose of a purse.

## AZURE LIZARD.

Lacerta Azurea. *L. cauda verticillata brevi, squamis mucronatis. Lin. Syst. Nat. p.* 362.
Lizard with short tail, verticillated with mucronated scales.
Lacerta Africana elegantissima. *Seb.* 2. *p.* 62. *t.* 62. *f.* 6.
Lacerta Brasiliensis *Quetzpaleo,* &c. *Seb.* 1. *p.* 152. *t.* 97. *f.* 4. ?

The colour of this species, in its natural or recent state, seems to be an elegant pale blue, fasciated on the body and tail with several transverse

and somewhat alternate bands either of black or very deep blue; but this is most conspicuous in the smaller specimens or varieties. It also appears to be sometimes met with of a plain colour, or with only a pair of fasciæ on the upper parts of the body, as in the specimen figured on the annexed plate. The head is rather obtuse; the body moderately thick, and covered as well as the limbs, with very small smooth scales: the tail, on the contrary, which is of moderate length, is very distinctly and strongly verticillated by rows of large carinated scales, the extremities of which project considerably, so as to form so many spiny points. In the smaller fasciated varieties the tail is shorter in proportion than in larger plain ones. A beautiful specimen of this kind, of the length of a very few inches, occurs in the Leverian Museum.

The large variety is a native of South America: the smaller of many parts of Africa.

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## CORDYLE LIZARD.

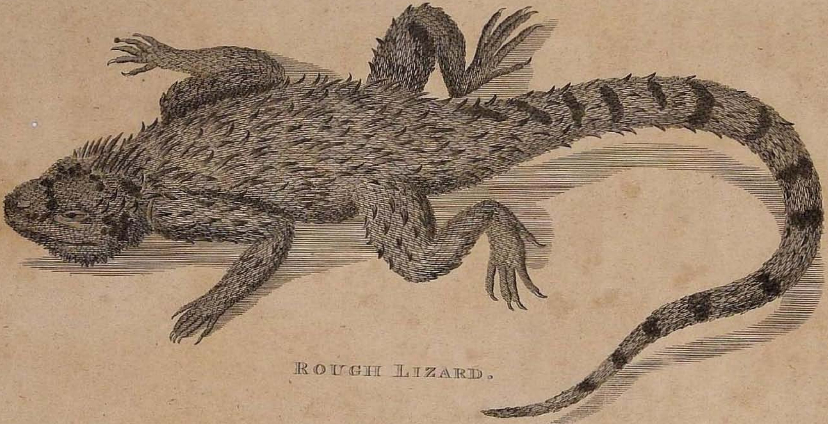
Lacerta Cordylus. *L. cauda verticillata brevi, squamis denticulatis, corpore lævigato. Lin. Syst. Nat. p.* 361.

Lizard with smooth body, and short tail verticillated with denticulated scales.

Lacertus Africanus cauda spinosa. *Seb.* 1. *p.* 136. *t.* 84. *f.* 3, 4.

Lacerta nigra Africana. *Seb.* 2. *p.* 62. *t.* 62. *f.* 5.

THE Cordyle Lizard is so nearly allied to the Azurea, that on a cursory view it might easily be mistaken for the same species. It differs, how-



ROUGH LIZARD.

Heath sculp.

1801 Dec. 1. London Published by G. Kearsley, Fleet Street.

ever, in having the body covered by much larger scales, which are also of an oblong-square form; and the tail, which does not much exceed the body in length, is verticillated by rows of very large scales of similar form, strongly carinated, and denticulated at their extremities. The colour of the animal is sometimes blueish, and sometimes of a dusky or livid brown: its total length is about ten inches.

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## ROUGH LIZARD.

Lacerta Stellio. *L. cauda-verticillata mediocri, squamis denticulatis, capite corporeque muricato. Lin. Syst. Nat. p.* 361.

Lizard with verticillated tail of middling length, with denticulated scales; the body and head muricated.

Lacerta aculeata promontorii bonæ spei. *Seb.* 2. *p.* 10. *t.* 9. *f.* 6.

This species is remarkable for the unusually rough or hispid appearance of its whole upper surface; both body, limbs, and tail, being covered with pointed scales, projecting here and there to a considerable distance beyond the surface, so that it appears muricated with spines: the tail is rather short than long, and is verticillated with rows of pointed scales. The general colour of the animal is a pale blueish brown, with a few deeper and lighter transverse variegations: its general length is about eight inches. It is a native of many parts of Africa.

It may be here observed, that the Lizard which we may suppose to have been emphatically termed

Stellio, by the ancients, from its being marked with spots resembling stars, seems at present unknown. It is, however, observable, that in one of Seba's plates a species occurs which is actually marked with well-defined or regular star-shaped spots.

Mr. Schneider considers the Lizards called Geckos as the true Stelliones.

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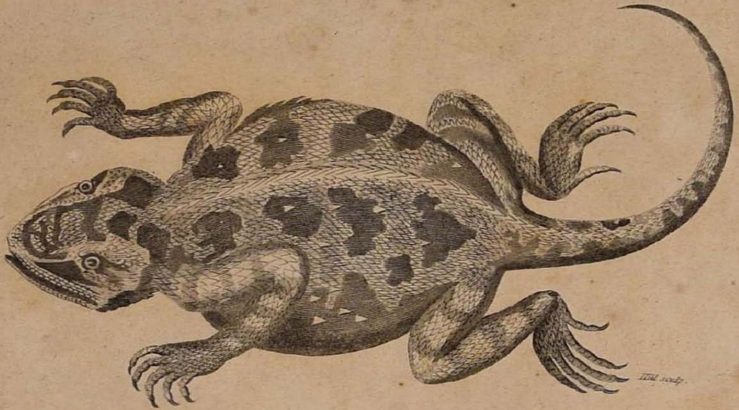
## ANGULATED LIZARD.

Lacerta Angulata. *L. cauda hexagona longa, squamis carinatis mucronatis. Lin. Syst. Nat. p.* 364.

Lizard with long hexagonal tail, with carinated and mucronated scales.

A SMALL species, first described by Rolander. Head naked, marked by several unequal, elevated wrinkles, and truncated, as it were, behind, where it joins with the body: beneath the throat two large rounded scales: body covered with carinated scales, except on the belly, where they are smooth: tail longer than the body, and strongly marked or angulated by six longitudinal carinæ: colour brown: native of America.




ORBICULAR LIZARD.

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## ORBICULAR LIZARD.

Lacerta Orbicularis. *L. supra muricata cauda tereti mediocri, abdomine subrotundo.*

Lizard with muricated scales, short round tail, and broad rounded body.

Lacerta orbiculare. *L. cauda tereti mediocri, vertice trimuricato, abdomine subrotundo. Lin. Syst. Nat. p.* 365.

Lacertus orbicularis spinosus, &c. *Seb.* 1. *p.* 134. *t.* 73. *f.* 1, 2.

This remarkable species may be said to connect, in some degree, the Toad and Lizard tribes, having the large, ventricose body of the one, with the limbs and tail of the other. Its general size is as represented on the annexed plate, and its colour a dusky brown, variegated with deeper and lighter shades: along the back runs a carina of sharp-pointed scales, and the whole upper surface is covered with somewhat spiny or muricated ones of different sizes: the under parts are coated by flat, pointed, smooth scales, rather larger than those on the upper parts.

This animal is a native of South America, and is one of the rarer species, being not often seen in collections.

*Lizards proper, smooth, and the greater number furnished with broad square plates or scales on the abdomen.*

## GREEN LIZARD.

Lacerta Agilis. *L. cauda verticillata longiuscula, squamis acutis, collari subtus squamis constructo. Lin. Syst. Nat. p.* 363.

Green Lizard, with minute dusky variegations, a collar of large scales beneath the neck, and long verticillated tail.

Lacertus viridis. *Aldr. Quadr. Ovip.* 634. *Raj. Quadr.* 264.

Lacertus vulgaris ventre nigro maculato. *Raj. Quadr.* 264.

This elegant species, which is found in all the warmer parts of Europe, and which seems pretty generally diffused over the ancient continent, sometimes arrives at a very considerable size, measuring more than two feet to the extremity of the tail: its more general length, however, is from ten to fifteen inches. In its colours it is the most beautiful of all the European Lacertæ, exhibiting a rich and varied mixture of darker and lighter green, interspersed with specks and marks of yellow, brown, blackish, and even sometimes red. The head is commonly of a more uniform green than the rest: the under part of the animal, both on the body and limbs, is of a pale blue-green cast: the head is covered with large angular scales; the rest of the upper parts with very small ovate ones: the tail, which is commonly much longer than the body, is marked into very numerous verticilli, or rings of oblong-square scales, slightly bifid at their extremities: beneath the

GREEN LIZARD.

Heath sculp.

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throat is a kind of collar, formed by a row of scales of much larger size than the rest: the abdomen is covered, down its whole length, with six rows of broad transverse scales or plates, and the under surface of the limbs is also covered with similar scales: along the insides of the thighs * runs a row of papillæ or tubercles, commonly about thirteen in number, which are also found in many other lizards belonging to different sections of the genus, and which probably assist the animal in climbing, or clinging to the stems and branches of vegetables, &c.: the tongue is moderately long, broad at the base, bifid towards the tip, and covered on its broad part with numerous rows of minute sharp papillæ pointing backwards, and thus the better enabling the animal to retain and swallow its prey, which consists chiefly of insects, small worms, &c. The Green Lizard is found in various situations, in gardens, about warm walls, buildings, &c. and is an extremely active animal, pursuing with great celerity its insect prey, and escaping with great readiness from pursuit when disturbed. If taken, however, it is soon observed to become familiar, and may even be tamed to a certain degree; for which reason it is considered as a favourite animal in many of the warmer parts of Europe. It appears to run into numerous varieties both as to size and colour, but in all these states the particular characteristics of the species are easily ascertained.

* This is always to be understood as relating to the hind thighs only.

VAR.?

Smaller, or grey Lizard.
Scaly Lizard. *Brit. Zool.* 3. *p.* 20. *pl.* 2. *f.* 2
Little Brown Lizard. *Edw. pl.* 225.

THIS is found in many parts of Europe, where the larger or green kind is not to be discovered. It is generally of the length of about six or eight inches, and is of a pale greyish or greenish brown colour, with a pair of dusky or deep brown dorsal or lateral stripes, speckled with small whitish spots, and accompanied by a few yellowish variegations: the under parts are of a very pale blueish or whitish green, and sometimes yellowish. This variety is found in our own country, and is occasionally seen basking, during the hotter part of the summer, about the roots of trees, old walls, &c. &c. in pursuit of insects, and generally escaping with great readiness, if pursued. This, as well as the former kind, has sometimes been used as a medicine, and has been supposed to possess peculiar virtues in leprous and some other cases.

VARIEGATED LIZARD.

*Heath sculp.*

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## VARIEGATED LIZARD.

Lacerta Teguixin. *L. variegata, cauda tereti longa, lateribus subrugosis, collo subtus plica triplici.*

Variegated Lizard, with long round tail, somewhat wrinkled sides, and a triple plait under the throat.

Lacerta Teguixin. *L. cauda tereti longa, sutura laterali plicata. Lin. Syst. Nat. p.* 368.

Lacerta *Tecuixin* seu *Tejuguacu. Seb.* 1. *p.* 96. *f.* 1, 2, 3.

Lacerta *Tejuguacu. Seb.* 1. *t.* 99. *f.* 1, 2.

Sauveguard. *Mer. Surin. t.* 70.

This, which is by far the largest in this division of the genus, sometimes exceeds the Guana in size. It has been extremely well represented in some of the plates of Seba, as well as by the celebrated Madam Merian, who has given a figure of it at the end of her splendid work on the insects of Surinam.

The head is covered, as in the Green Lizard, with large scales or plates; the body with small and somewhat square scales, which are so disposed as to mark the sides into numerous tapering annuli or striæ, passing from the back perpendicularly downwards, and from the sides perpendicularly upwards, the narrow end of each row alternating with the broader end of the opposite one; and in the younger specimens a kind of plaited appearance, or continued lateral wrinkle appears to pass along each side of the animal: the tail, which is very long, is surrounded by extremely numerous rings of small square scales, and tapers to a slender point. The colour, in the

larger specimens, is highly beautiful, consisting of an elegant, and, in general, somewhat minute variegation of brown, blackish, and purple spots, on a pale blueish-white, and, in some parts, yellowish ground. The whole form of the animal is rather thick or plump, in comparison with many other lizards: the tongue is broad, flat, long, forked at the tip, and curiously striated on each side: the head shaped like that of the Ameiva, to which this species is nearly allied. It is a native of South America.

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## RED-HEADED LIZARD.

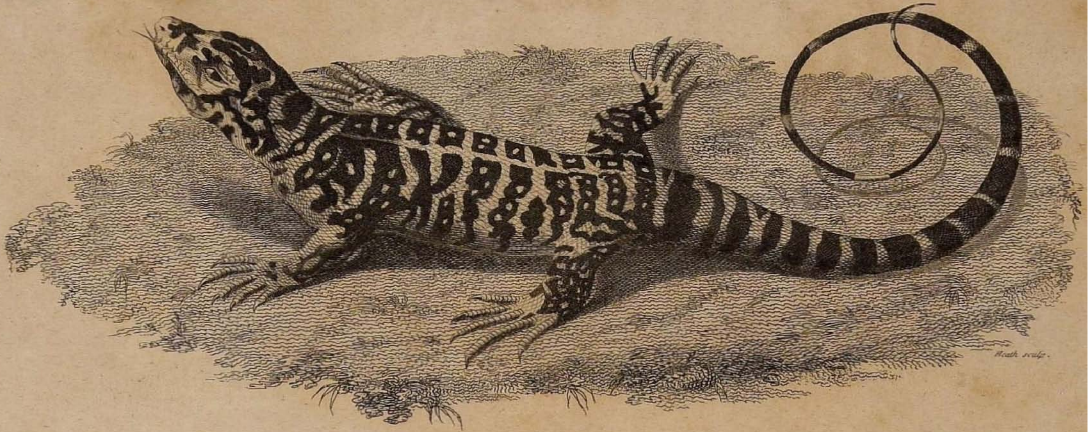
Lacerta Erythrocephala. *L. atrovirens fasciis transversis nigris, abdomine longitudinaliter albo nigro & cæruleo fasciato, pectore nigro, vertice rubro.*

Blackish-green Lizard, with transverse black undulations, abdomen longitudinally banded with black, white, and blue, the breast black, and the top of the head red.

La Tete-Rouge. *Cepede ovip. 2. p.* 493.

A MIDDLE-SIZED species; native of the island of St. Christopher; described by the Count de Cepede. Colour deep or dark green above, mixed with brown: back marked by several transverse black undulations: top of the head, and part of the sides of the neck, red: throat white; breast black: belly variegated with longitudinal black, blue, and whitish bands, and covered with square scales or plates: head covered with larger scales than the other parts: beneath the thighs a row of tubercles.

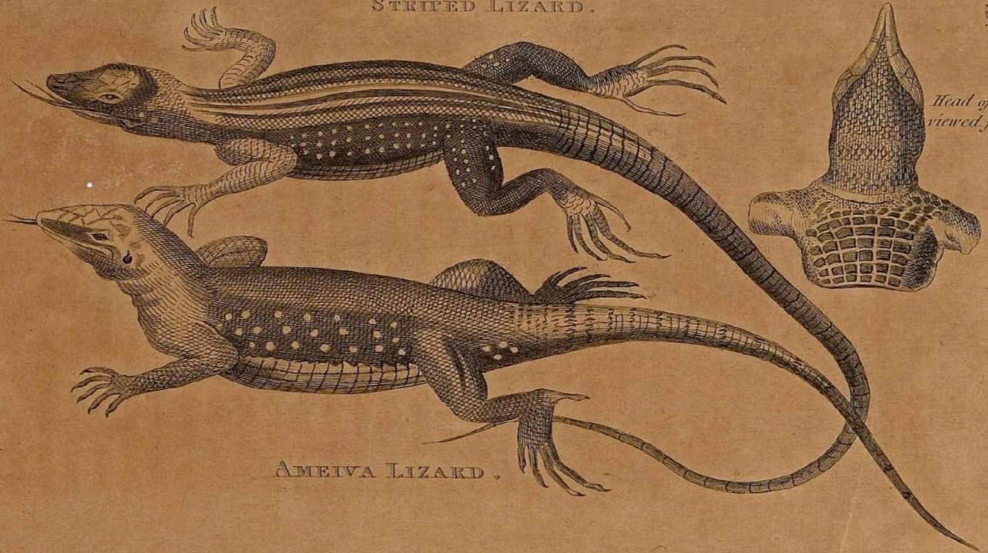
VARIEGATED LIZARD, *var?*



*Heath sculp.*

*1802 Jan.y 1 London Published by G Kearsley Fleet Street.*

STRIPED LIZARD.



Head of Ameiva viewed from beneath.

AMEIVA LIZARD.

1802 Jan.^y 1 London Published by G Kearsley Fleet Street.

Heath sculp.

## AMEIVA LIZARD.

*Lacerta cærulea, albo nigroque variata, cauda longa verticillata, scutis abdominis triginta.*

Blue Lizard with black and white variegations, long verticillated tail, and thirty abdominal scuta.

Lacerta Ameiva. *L. cauda verticillata longa, scutis abdominis triginti, collari subtus ruga duplici. Lin. Syst. Nat. p.* 362.

Great spotted Lizard. *Edw. pl.* 203.

Ameiva. *Seb.* 1. *t.* 88. *f.* 1, 2.

The Ameiva is much allied to the Green Lizard in its general appearance, but is not furnished with the remarkable scaly collar by which that species is distinguished; having only a double transverse crease or plait on the same part: the head is also somewhat longer, and the snout more taper in proportion: the scales with which the upper parts of the animal are covered are extremely small, so as to be not very distinctly visible: those of the abdomen consist of square plates, as in the green lizard; and beneath each thigh is a range of tubercles. In colour the Ameiva varies considerably, but is commonly blue or blueish-green above, with somewhat irregular variegations of black and white, which are sometimes disposed in streaks, and sometimes in spots, or patches; and commonly in such a manner as to leave several whitish or pale-blue round spots scattered on different parts of the body and limbs: the under parts are dusky, with more or less of a blueish cast, and often marked here and there with small whitish spots.

The Ameiva is principally found in South America, but it is also said to occur in some parts of Asia and Africa.

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## STRIPED LIZARD.

Lacerta Lemniscata. *L. cauda tereti longa, dorso lineis octo albidis. Lin. Syst. Nat. p.* 369.

Dusky-blue Lizard, with eight white lines down the back, long round tail, and limbs spotted with white.

Lacerta Brasiliensis *Taraguira. Seb.* 2. *t.* 91. *f.* 3.

Lacerta Brasiliensis *Tecunhana. Seb.* 2. *t.* 91. *f.* 4.

So closely allied is this to the *Ameiva*, that, without a careful inspection, it might be mistaken for the same species: its general size, however, is rather smaller: its colour is a dusky blue, marked above by eight longitudinal white lines or stripes, running from the head to the beginning of the tail: the sides, beneath the stripes, and the outsides of the thighs, are marked with small white spots: beneath the thighs is a range of tubercles, but there is no appearance of a crease or transverse fold under the throat: the white stripes on the back vary in breadth, and even sometimes in number, in different individuals. It is a native of Africa, and is principally found in Guinea; but is also said to be met with in some parts of India, and even in South America.

### FOUR-STRIPED LIZARD.

Lacerta Quadrilineata. *L. cauda tereti longa, pedibus subunguiculatis, palmis tetradactylis, corpore lineis quatuor flavis. Lin. Syst. Nat. Gmel. p.* 1076.

Blackish-blue Lizard, with tetradactyle fore-feet, long rounded tail, and four white or yellowish lines down the back.

Closely allied to the *Lemniscata,* but a much smaller species: colour blackish blue, with four white or yellowish bands down the back: fore feet tetradactyle; hind feet pentadactyle: claws very small: tail long and taper. Described by Linnæus in the Museum Adolphi Friderici. Supposed to be a native of North America.

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### RIBBON LIZARD.

Lacerta Tæniolata. *L. cauda tereti longa, corpore supra tæniolis albis nigrisque, subtus albo.*

Lizard with long round tail, and body marked above with black and white stripes; beneath white.

Ribbon Lizard. *White's Journ. of Voy. to N. S. Wales, p.* 245. *pl.* 32.

A small species, much allied to *Fasciata* and others of this division: covered entirely with smooth, rounded, imbricated scales on all parts: colour chesnut brown above; pale or whitish beneath: on the back from the head to the middle of the tail six narrow white linear stripes, the intermediate spaces of the central and lowermost stripes

being black: tail long and slender: limbs striped longitudinally with black: feet slender; five-toed: native of New Holland.

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## SIX-LINED LIZARD.

Lacerta Sexlineata. *L. cauda verticillata longa, dorso lineis sex albis. Lin. Syst. Nat. p.* 364.
Grey-brown Lizard, with long verticillated tail, and six white lines down the back.
The Lion-Lizard. *Catesb. Car.* 2. *t.* 68.

A SMALL species, allied to the Ameiva: colour grey, with six longitudinal lines or whitish stripes down the upper parts: beneath the throat a double crease, and beneath the thighs a row of tubercles: legs long; feet slender: tail commonly carried in an elevated manner, curving over the back, for which reason it is called the Lion-Lizard: runs very swiftly, and chiefly frequents the rocks about the sea coasts of Cuba and Hispaniola, where it is preyed on by Gulls, &c.

## FASCIATED LIZARD.

Lacerta Fasciata. *L. cauda tereti longiuscula, cærulea, dorso lineis quinque flavescentibus. Lin. Syst. Nat. p.* 369.
Brown Lizard, with longish blue tail, and five yellowish lines down the back.
The Blue-tail Lizard. *Catesb.* 2. *t.* 67.

A small species, seldom exceeding eight inches in length: head short; tail blue; rest of the body brown, with five equidistant yellow lines running from the nose to the tail: native of Carolina and Virginia, where it frequents hollow trees, &c. and is often seen on the ground.

## FIVE-LINED LIZARD.

Lacerta Quinquelineata. *L. cauda tereti mediocri, dorso lineis quinque albidis.*
Dusky Lizard, with tail of middling length, and five whitish lines down the back.

A small species: colour deep brown or blackish, with five whitish dorsal stripes, continued half way down the tail: on the head six stripes: tail twice the length of the body: abdomen imbricated with striæ: native of Carolina: described by Dr. Garden.

## PUNCTATED LIZARD.

Lacerta Interpunctata. *L. cauda tereti longa, dorso lineis duabus flavis, punctis nigris interspersis. Lin. Syst. Nat. Gmel. p.* 1075. *Mus. Ad. Frid. p.* 46.

Lizard with long round tail, and two yellow dorsal lines, with black specks interspersed.

Lacerta Africana. *Seb.* 2. *t.* 12. *f.* 6.

A SMALL species: native of Asia: head covered with large scales: body smooth and glossy, with two obscure yellowish lines distinguishing the back from the sides: down the dorsal area run six rows of black specks or points, and down each side a similar number: feet and tail also spotted in a similar manner.

## RED-THROAT LIZARD.

Lacerta Bullaris. *L. viridis, cauda tereti longa, vesica gulari rubra.*

Green Lizard, with long round tail and red gular vesicle.

Lacerta Bullaris. *L. cauda tereti longa, vesica gulari. Lin. Syst. Nat. p.* 368.

Green Lizard of Jamaica. *Catesb. Car.* 2. *t.* 66.

THIS, according to Catesby, is usually six inches long, and of a shining grass-green colour. It is common in Jamaica, frequenting hedges and trees, but is not seen in houses: when approached it swells its throat into a globular form, the protruded skin on that part appearing of a bright red colour, which disappears in its withdrawn or

contracted state: this action is supposed to be a kind of menace, in order to deter its enemy; but it is incapable of doing any mischief by its bite or otherwise.

VAR. ?

Green Carolina Lizard. *Catesb. 2. pl. 65.*

This, which appears to resemble the former in every particular, except in the extensile gular skin, is said by Catesby to be very common in Carolina, frequenting houses, and becoming in a degree familiar, so as to sport about the tables and windows, catching flies with great dexterity, appearing chiefly in summer, and on the approach of cold weather retreating to its winter quarters, lying torpid in the hollows of trees, &c. It is sometimes tempted to leave its retreat prematurely, and, on a change of weather, becomes so enfeebled by the cold as to perish before it regain its habitation. Its colour is observed to change very considerably, appearing of a bright green in dry hot weather, and changing to brown in cold weather: the structure of the feet in these lizards is similar to that of the *L. Principalis*, the toes being slender and somewhat dilated towards the tips. The red expansile gular pouch is perhaps peculiar to the male.

### RED-TAIL LIZARD.

Lacerta Cruenta. *L. cauda verticillata supra cinerea subtus coccinea apice albicante, colli subtus plica transversa. Lin. Syst. Nat. Gmel. p.* 1072. *Pall. it.* 1. *p.* 456.
Brown Lizard, with seven cervical and four dorsal white stripes, a crease under the throat, and verticillated tail red beneath.

An extremely small species, allied to the *L. velox*, but with a sharper snout: body brown above, with seven white stripes on the neck, four of which are continued as far as the tail: limbs spotted with round white spots; body white beneath, tail red beneath, and white at the tip: a row of tubercles on the thighs: native of the south of Siberia, inhabiting the country about the salt lakes.

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### LOBE-CHEEKED LIZARD.

Lacerta Lobata. *L. collo utrinque lobo semiorbiculato denticulato.*
Brownish Lizard, with a semiorbicular denticulated lobe on each side the neck.
Lacerta aurita. *L. cauda tereti mediocri utrinque ad latus callosis punctis aspera, plica gulæ transversa subgemella, oris angulis utrinque in cristam semiorbiculatam mollem scabram dentatam dilatatis. Lin. Syst. Nat. Gmel. p.* 1073. *Pall. it.* 3. *p.* 702. *t. V. f.* 1.

This is a middle-sized species, of a somewhat thick or ventricose habit; with the body rather depressed, and the head rounded or blunt in front: from the corners of the mouth on each side is

horizontally extended a flat, semiorbicular skin or wattle, of a red colour, with serrated edges, and reaching as far as the shoulders: the remainder of the animal is clouded with yellowish and cinereous: tail rather short than long, and roughened above, as is the whole body, with small, pointed granules: toes five, of which the three intermediate ones are serrated on the edges. This species appears to be in some degree allied to the Geckos; it is a native of the southerns desert of Siberia, frequenting sandy hills, and was first described by Dr. Pallas.

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## SUN-GAZING LIZARD.

Lacerta Helioscopa. *L. cauda imbricata basi crassa apice acuta, collo subtus plica transversa, capite callis aspero. Lin. Syst. Nat. Gmel. p.* 1074. *Pall. it.* 1. *p.* 457.

Brownish Lizard, with imbricated tail, thick at the base and sharp at the tip, a transverse crease beneath the throat, and the head rough with calli.

This also appears to be in some degree allied to the Geckos, being of a short, thickish form and muricated on the upper parts with small tubercles: the head is blunt or rounded in front; and the neck marked by a kind of stricture: tail moderately short, and terminating acutely: colour of the upper parts grey, with brown and blueish spots and linear streaks: neck often marked above by a red spot: under parts pale or whitish, and covered with smooth, pointed scales: tip of tail

red beneath. This species is said by Dr. Pallas to be very common in the southern deserts of Siberia, where it delights to sit in hot sunny situations, with its head turned up towards the sun. It is a small species, measuring not more than a finger's length, and is extremely nimble in its motions.

## TURKISH LIZARD.

Lacerta Turcica. *L. cauda subverticillata mediocri, corpore griseo subverrucoso. Lin. Syst. Nat. Gmel. p.* 1068.

Brown roughish Lizard, with subverticillated tail of middling length.

Small spotted grey Lizard. *Edw. pl.* 204. *f.* 2.

A SMALL species, first described by Edwards: native of the eastern regions: head rather large: body thickish: tail rather short, thickish at the base, and pointed at the tip: whole animal roughened on the upper surface with small granules or tubercles: colour dull brown, somewhat paler on the under parts: appears to be somewhat allied to the Geckos in general habit.

## BROAD-TAILED LIZARD.

Lacerta Platura. *L. griseo-fusca scabra, subtus pallida, cauda depresso-plana lanceolata, margine subaculeata.*

Grey-brown rough Lizard, paler beneath, with depressed lanceolate tail almost spiny on the margin.

Lacerta Platura. Broad-tailed Lizard. *White's Journ. of Voy. to New South Wales, p. 245. pl. 32. Nat. Misc. vol. 2. pl. 65.*

This remarkable species is a native of New Holland, and is strikingly distinguished by the peculiar form of its tail, which is flat or depressed, and gradually widens from the base to a greater diameter than the body of the animal, and again gradually tapers to a sharp attenuated extremity: it is muricated, as is every other part of the upper surface of the animal, by small tubercles, which on the edges of the tail are lengthened into sharpened points: the head is large, somewhat flattened, broad at the back part, and tapers at the snout: the neck is nearly of the diameter of the body, which somewhat exceeds the tail in length: the limbs are of moderate length and rather slender than strong: the feet all pentadactyle, with slender toes, armed by curved claws. The colour of the whole animal on the upper parts, is a dusky brownish grey; beneath paler and smooth. The general length of this species seems to be from four to six inches or rather more In habit, except in the feet, it is allied to the Gecko tribe.

## PLICA LIZARD.

Lacerta Plica. *L. cauda tereti longa, occipite calloso, palpebris supra excoriatis, collo lateribus verrucoso, subtus plicato. Lin. Syst. Nat. Gmel. p.* 1074.

Lizard with round long tail, hind-head callous, eyebrows excoriated above, neck warted at the sides, and plaited beneath.

A SMALL species, native of India and South America: length of a finger; covered on all parts with conical scales: on each side the neck two muricated tubercles: beneath the throat a double crease: down the back a row of larger scales than the rest, and somewhat crenated: tail about twice the length of the body, covered with minute scales, and scarce distinctly verticillated: toes long, roughened beneath by sharper scales: claws compressed.

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## JAPANESE LIZARD.

Lacerta Japonica. *L. cauda tereti longa, pedibus unguiculatis, palmis tetradactylis, dorso vittato. Lin. Syst. Nat. Gmel. p.* 1076. *Houttuyn. Act. Uliss.* 9. *p.* 329.

Lizard with long round tail, unguiculated feet, tetradactyle fore-feet, and single-striped back.

A SMALLISH species: native of Japan: colour livid brown above, with a broad dentated yellow stripe from the hind head to the beginning of the tail: eyes small; eyelids large and rough: tail somewhat compressed at the tip: claws black.

## NILOTIC LIZARD.

Lacerta Nilotica. *L. cauda longa extimo triquetra, corpore glabro, dorso squamarum lineis quatuor. Lin. Syst. Nat. Gmel.* 1075. *Hasselqu. it. p.* 311.

Lizard with long triquetrous tail, smooth body, and four lines of scales down the back.

SMALL; native of Egypt: observed by Hasselquist.

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## TILIGUERTA LIZARD.

Lacerta Tiliguerta. *L. cauda verticillata corpore duplo longiore, scutis abdominis octoginta. Lin. Syst. Nat. Gmel. p.* 1070. *Cetti. Anfib. di Sard. p.* 15.

Lizard with verticillated tail of twice the length of the body, and eighty abdominal scuta.

THIS, which is a small species, measuring between seven and eight inches in length, is allied to the green lizard, and is a native of the island of Sardinia, where it is said to be found in fields, about walls, &c.: the male is green, spotted with black; the female brown.

## DESERT LIZARD.

Lacerta Deserti. *L. cauda tereti longiuscula, pedibus pentadactylis, corpore supra nigro, lineis sex albis longitudinalibus. Lin. Syst. Nat. Gmel. p.* 1076.

Lizard with longish round tail, pentadactyle feet, and body black above, with six longitudinal white lines.

A VERY small species: body white beneath: the stripes of the back consist of oblong spots, and between the exterior stripe and the next are five white specks: native of the *Ural* desert.

## ARGUTE LIZARD.

Lacerta Arguta. *L. cauda verticillata brevi, basi crassiuscula, apice filiformi, collari squamis obsoletis plicaque sub collo duplici insigni. Lin. Syst. Nat. Gmel. p.* 1072. *Pall. it.* 1. *p.* 456.

Lizard with short verticillated tail, thickish at the base and filiform at the tip, with a collar of obscurely-marked scales, and a remarkable double crease under the neck.

NATIVE of the South of Siberia: described by Dr. Pallas: allied to the green lizard, but of a shorter or more ventricose form, with a sharper snout, and less numerous as well as less distinct subfemoral tubercles: colour glaucous above, with several subconfluent transverse black bands, most distinct at the base of the tail, where they are marked by ocellated spots of the ground-colour of the back: under parts white.

## ALGERINE LIZARD.

Lacerta Algira. *L. cauda verticillata longiuscula, corpore lineis utrinque duabus flavis. Lin. Syst. Nat. Gmel. p.* 1073.

Lizard with longish verticillated tail, and two yellow lines on each side the body.

A SMALL species, of about a finger's length: above brown, beneath yellowish: back covered with carinated scales, and bounded on each side by a yellow line, separating the abdomen from the upper parts. Native of Algiers.

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## SWIFT LIZARD.

Lacerta Velox. *L. cauda verticillata longiuscula, collari subtus squamis constructo, corpore supra cinereo, strigis quinque longitudinalibus dilutioribus punctisque fuscis vario, ad latera nigro maculato & cærulescente punctato. Lin. Syst. Nat. Gmel. p.* 1072. *Pall. it.* 1. *p.* 457.

Lizard with longish verticillated tail, a scaly collar beneath the neck; cinereous body, with five longitudinal paler bands, variegated with black specks; the sides spotted with black, and speckled with blue.

MUCH allied to the *L. agilis*, but much smaller, and more slender: hind feet marked with orbicular spots: native of Siberia, wandering about in sunny situations among stones, &c. when disturbed, moves off with extreme celerity.

## URAL LIZARD.

Lacerta Uralensis. *L. cauda tereti longiuscula, collo subtus plicato, pedibus omnibus pentadactylis, dorso ex cinereo livido, rugoso & subverrucoso.* *Lin. Syst. Nat. Gmel.* p. 1073. *Lepechin. it.* 1. *p.* 317. *t.* 22. *f.* 1.

Lizard with longish round tail, neck plaited beneath, all the feet pentadactyle, and back livid, rugose, and subverrucose.

Native of the desert of *Ural*: length about four inches: head roundish: colour of the upper parts livid brown, and covered with a wrinkled and slightly tuberculated skin: under parts whitish: moves with great swiftness.

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## SEPS LIZARD.

Lacerta Seps. *L. cauda verticillata longiore, sutura laterali reflexa, squamis quadratis.* *Lin. Syst. Nat.* p. 363.

Blueish-brown Lizard, with longish verticillated tail, reflexed lateral suture, and square scales.

The Seps is rather a small species, and is easily distinguished by the thin and lengthened form of its body, long, slender tail, small, short limbs, slender toes, and particularly by the square scales with which it is entirely covered both above and below, and which are so disposed as to mark the animal into a great number of longitudinal and transverse divisions: the abdomen is divided as it were from the sides, by a very strongly-marked suture, continued from the head to the base of the

COMMON CHAMŒLEON.

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tail; the sides rising up a little beyond the furrow: beneath the thighs is a row of papillæ: all the feet are furnished with five slender toes, and the tail is marked into about fifty verticilli or divisions. This lizard is a native of the southern parts of Europe, and though remotely different as a species, seems by some authors to have been confounded with the *Lacerta Chalcides*, the name *Seps* having been applied occasionally to both animals. In the British and Leverian Museums are specimens agreeing in every particular with the Linnæan description of the species. Its colour is a livid brown above, paler or more inclining to whiteness beneath.

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## *Chamæleons, with granulated skin, missile tongue, &c.*

### COMMON CHAMÆLEON.

Lacerta Chamæleon. *L. cinerea, pileo plano, cauda tereti incurva, digitis duobis tribusque coadunatis.*

Grey Chameleon, with flat crown, cylindric incurved tail, and toes conjoined by two and three.

L. Chamæleon. *L. cauda tereti brevi incurva, digitis duobus tribusque coadunatis. Lin. Syst. Nat. p.* 364.

*L. cinerea, pileo plano. Lin. Syst. Nat. Gmel. p.* 1069.

Chamæleon. *Aldr. Quad. Ovip. p.* 670. *Jonst. Quadr. t.* 79.

The Chameleon. *Museum Leverianum,* 1. *p.* 194.

L. Chamæleon. Chameleon. *Millar. Cim. Phys. p.* 22. *t.* 11.

Few animals have been more celebrated by natural historians than the Chameleon, which has

been sometimes said to possess the power of changing its colour at pleasure, and of assimilating it to that of any particular object or situation. This, however, must be received with very great limitations; the change of colour which the animal exhibits varying in degree, according to circumstances of health, temperature of the weather, and many other causes, and consisting chiefly in a sort of alteration of shades from the natural greenish or blueish grey of the skin into pale yellowish, with irregular spots or patches of dull red; but not justifying the application of the Ovidian distich.

> "Non mihi tot cultus numero comprendere fas est:
> Adjicit ornatus proxima quæque dies."
>
> No numbers can the varying robe express,
> While each new day presents a different dress.

It is also to be observed, that the natural or usual colour of Chameleons varies very considerably; some being much darker than others, and it has even been seen approaching to a blackish tinge. An occasional change of colour is likewise observable, though in a less striking degree, in some other Lizards.

The general length of the Chameleon, from the tip of the nose to the beginning of the tail, is about ten inches, and the tail is of nearly similar length, but the animal is found of various sizes, and sometimes exceeds the length above mentioned. It is a creature of a harmless nature, and supports itself by feeding on insects; for which

purpose the structure of the tongue is finely adapted, consisting of a long, missile body, furnished with a dilated and somewhat tubular tip, by means of which the animal seizes insects with great ease, darting out its tongue in the manner of a Woodpecker, and retracting it instantaneously with the prey secured in its tip. It can also support a long abstinence, and hence arose the popular idea of the Chameleon being nourished by air alone. It is found in many parts of the world, and particularly in India and Africa. It is also sometimes seen in the warmer parts of Spain and Portugal.

The Chameleon, by the power which it possesses in common with most other Amphibia, of inflating its lungs and retaining the air for a great length of time, appears occasionally of a plump or fleshy aspect, while at other times, on evacuating the air from its lungs and keeping them in a collapsed state, it appears in the utmost degree of extenuation as if consisting of little more than a mere skin, the ribs being completely visible on each side the body. The skin on every part of the animal is of a granulated structure, the granules differing in size on different parts, from that of a small pin's head to the diameter of the tenth of an inch, or even more, especially on the edges of the projecting parts of the head and jaws. Down the back runs a series of obscure denticulations or slight projections, forming a carina on that part. The feet consist each of five toes, three and two of which on each foot are connate, or

united as far as the claws by a common skin: on the fore feet the two outward and three inward toes are united; and in the hind feet the two inward and three outward. The motions of the Chameleon are extremely slow, and in sitting on a branch, or in passing from one to another, it fastens itself by coiling its tail round that from which it means to pass, till it has perfectly secured the other with its feet.

The general or usual changes of colour in the Chameleon, so far as I have been able to ascertain from my own observation of such as have been brought into this country in a living state, are from a blueish ash-colour (its natural tinge) to a green and sometimes yellowish colour, spotted unequally with red. If the animal be exposed to a full sunshine, the unilluminated side generally appears, within the space of some minutes, of a pale yellow, with large roundish patches or spots of red-brown. On reversing the situation of the animal the same change takes place in an opposite direction; the side which was before in the shade now becoming either brown or ash-colour, while the other side becomes yellow and red; but these changes are subject to much variety both as to intensity of colours and disposition of spots.

The following is the description given by the anatomists of the French Academy:

"The colour of all the eminences of our Chameleon when it was at rest, in the shade, and had continued a long time undisturbed, was a blueish grey, except under the feet, where it was white

inclining to yellow, and the intervals of the granules of the skin were of a pale and yellowish red. This grey, which coloured all the parts exposed to the light, changed when in the sun; and all the places of its body which were illuminated, instead of their blueish colour, became of a brownish grey, inclining to a *minime.* The rest of the skin, which was not illuminated by the sun, changed its grey into several brisk and shining colours, forming spots about half a finger's breadth, reaching from the crest of the spine to the middle of the back: others appeared on the ribs, fore legs, and tail. All these spots were of an Isabella colour, through the mixture of a pale yellow with which the granules were tinged, and of a bright red, which is the colour of the bottom of the skin which is visible between the granules: the rest of the skin not enlightened by the sun, and which was of a paler grey than ordinary, resembled a cloth made of mixed wool; some of the granules being greenish, others of a minime-grey, and others of the usual blueish grey, the ground remaining as before. When the sun did not shine, the first grey appeared again by little and little, and spread itself all over the body, except under the feet, which continued of the same colour, but a little browner; and when, being in this state, some of the company handled it, there immediately appeared on its shoulders and fore legs several very blackish spots about the size of a finger nail, and which did not take place when it was handled by those who usually took care of it. Sometimes it was

marked with brown spots, which inclined towards green. We afterwards wrapped it up in a linen cloth, where having been two or three minutes, we took it out whitish; but not so white as that of which Aldrovandus speaks, which was not to be distinguished from the linen on which it was laid. Ours, which had only changed its ordinary grey into a very pale one, after having kept this colour some time, lost it insensibly. This experiment made us question the truth of the Chameleon's taking all colours but white; as Theophrastus and Plutarch report; for ours seemed to have such a disposition to retain this colour, that it grew pale every night; and when dead, it had more white than any other colour: nor did we find that it changed colour all over the body, as Aristotle reports; for when it takes other colours than grey, and disguises itself, to appear in masquerade, as Ælian pleasantly says, it covers only certain parts of the body with them. Lastly, to conclude the experiments relative to the colours which the Chameleon can take, it was laid on substances of various colours, and wrapped up therein; but it took not them as it had done the white; and it took that only the first time the experiment was made, though it was repeated several times on different days."

"In making these experiments we observed that there were a great many places of its skin which grew brown, but very little at a time: to be certain of which we marked with small specks of ink those granules which to us appeared whitest in its

pale state; and we always found that when it grew brownest, and its skin spotted, those grains which we had marked, were always less brown than the rest."

The anatomy of the Chameleon has been well detailed by the above-mentioned Academicians. The principal abridged particulars are as follow:

The *Mouth* is wide and the bones of the jaws denticulated, so as to represent small teeth.

The *Tongue* is of a very extraordinary form; being composed of a white solid flesh, about ten lines long, and three broad, round, a little flattish towards the end, hollow, and open, somewhat like the end of an elephant's proboscis. This tongue is fastened to the *os hyoides* by means of a sort of trunk, shaped like an intestine, six inches long, and a line broad, having a membrane without, and a nervous substance within, which is solid and compact, though soft, and not easily divisible into fibres: this trunk serves to cast out the tongue, which is fastened to it, by extending it, and to draw it back by contracting it, which motion it is enabled to perform by a kind of cartilaginous *stylus* to which its investing membrane is attached, and over which it is plaited like a silk stocking on the leg: this *stylus* is an inch long, and takes its origin from the middle of the base of the *os hyoides*, as in the tongue of several birds: a number of blood-vessels are distributed on the tongue.

The form, structure, and motion of the *Eyes* is very peculiar: they are very large, viz. above five lines in diameter; appearing spherical, projecting

in the living animal full half of their diameter: they are covered with one single eyelid or skin, pierced in the middle with a small hole of not more than a line in diameter, through which the pupil appears, surrounded by a gold-coloured iris: the eyelid, or investing skin, is granulated like the rest of the animal: the fore part of the eye is fastened to the lid, so that the lid follows all the motions of the eye: sometimes one of the eyes will move while the other is at rest, or turn forwards while the other is directed backwards, or upwards, while the other is turned downwards: by extending the skin of the orifice crossways the Chameleon can close its eyes, the hole then becoming a longitudinal rima or slit: the optic nerves are eight lines in length: the cornea is small; the sclerotica hard and thick; but the hinder part very thin: the choroides black under the iris, and blueish at the bottom: the retina very thick, and reddish: the humors all aqueous, the chrystalline itself scarce distinct from the rest.

The *Brain* is extremely small, scarce more than a line in diameter, and not twice the thickness of the spinal marrow, which is very white, the brain itself being grey.

The *Heart* is very small, not exceeding three lines in length; its point appearing truncated or as if cut off: the auricles very large, especially the left, and somewhat redder than the heart.

The *Lungs* very large when inflated; and divided into several processes or saccular subdivisions; but when collapsed they appear small.

The *Stomach* long and narrow; the intestines large.

The *Liver* of a pretty firm substance, and of a dark red colour.

In the stomach (as may be supposed) were the remains of insects.

This Chameleon, during the time it lived, occasionally evacuated from its intestines certain small stony concretions of about the size of a pea, of an apparently calcareous substance, and readily dissolving in vinegar: one of them was found to contain in its middle the head of a fly; so that they must necessarily have been formed in the stomach or intestines of the animal*.

The spine of the Chameleon, comprehending the tail, consists of seventy-four vertebræ, and the ribs are eighteen on each side.

The popular error of the Chameleon living on air alone, must have originated from the long abstinence which the animal can occasionally support; instances having occurred of its passing several months without any apparent nourishment.

Sir Thomas Browne, in a long and learned chapter on this subject in his *Vulgar Errors*, expresses himself in the following terms:

"All which considered, severer heads will be apt enough to conceive the vulgar opinion of this animal, to be not much unlike that of the *Astomi*,

* A kind of Bezoar is occasionally found in the stomach of the common Guana; instances of which may be found in the work of Seba.

or Men without mouths, in *Pliny*; suitable unto the relation of the Mares in Spain, and their subventaneous conceptions from the western wind; and in some way more unreasonable than the figment of *Rabican*, the famous horse in *Ariosto*, which being conceived by flame and wind, never tasted grass, or fed on any grosser provender than air; for this way of nutrition was answerable unto the principles of his generation; which being not airy but gross and seminal in the *Chamæleon*, unto its conservation there is required a solid pasture, and a food congenerous unto the principles of its nature."

Besides the Common Chameleon, different races appear to exist, which are principally distinguished by their colour, and the more or less elevated state of the angular or crested part of the head. These, which Linnæus was content to consider as varieties, are now raised to the dignity of species, and are thus distinguished in the Gmelinian edition of the Systema Naturæ.

## AFRICAN CHAMELEON.

Lacerta Africana. *L. nigra pileo carinato. Lin. Syst. Nat. Gmel. p.* 1069.

Blackish Chameleon, with carinated crown.

Chamæleo ex Africa colore nigricante, at pectine albo supra dorsum decoratus. *Seb. Mus.* 1. *p.* 134. *t.* 83. *f.* 4.

This, says Seba, came from the coasts of Barbary, and is one of the largest yet known: along

the back, to the end of the tail, runs a pure white stripe, bounded by a broad blackish band : the rest of the animal is variegated with pale cinereous undulations. In the specific character, as given by Dr. Gmelin, the word *nigricans* should be substituted for nigra, since the stripes alone on the top of the back are of a black colour, as is evident from the description and figure of Seba.

## LITTLE CHAMELEON.

Lacerta Pumila. *L. corpore lateribus cærulescente, lineis binis flavescentibus. Lin. Syst. Nat. Gmel. p.* 1069.

Chameleon with the body blueish on each side, marked with two yellowish lines.

Chamæleo promontorii Bonæ Spei, cæruleo alboque colore marmoris instar variegatus. *Seb. Mus.* 1. *p.* 135. *t.* 83. *f.* 5.

This, according to Seba's description and figure, has the head somewhat flatter than the former, though still elevated towards the middle part: it is also edged on each side by a denticulated margin. The body is of a blueish colour, marbled or variegated with white. It may well be doubted, however, whether either this or the former can properly be considered as in any other light than varieties of the common or first described species.

*Geckos, with granulated or tuberculated skin, lobated feet, and toes lamellated beneath.*

### COMMON GECKO.

Lacerta Gecko. *L. livida fusco variegata, corpore verrucoso, pedum lamellis indivisis.*

Livid Gecko, with brown variegations, body warted above, and the lamellæ of the feet undivided.

Lacerta Gecko. *L. cauda tereti mediocri, digitis muticis subtus lamellatis, corpore verrucoso, auribus concavis. Lin. Syst. Nat. p.* 365.

Salamandra vera seu Gekko Ceilonicus. *Seb.* 1. *p.* 170. *t.* 108.

The Gecko, said to be so named from the sound of its voice, which resembles the above word uttered in a shrill tone, is a native of many parts of Asia and Africa, as well as of some of the warmer regions of Europe. It is one of the middle-sized Lizards, measuring, in general, about a foot in length, or rather more. It is of a thicker and stouter form than most other Lizards, having a large and somewhat triangular flattish head, covered with small scales, a wide mouth, large eyes, minute teeth, and a broad flat tongue. The limbs are of moderate length, and the feet are of a broader form than in the rest of the genus Lacerta, each toe being dilated on the margins, and divided beneath into a great number of parallel transverse lamellæ, without any longitudinal mark or furrow: all the toes, except the thumbs, are furnished with small claws: the tail, which is generally longer than the body, is marked, more or less

COMMON GECKO.

Hill sculp.

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distinctly, according to the age of the animal, into divisions or verticillated rings: the whole animal is covered on the upper parts with numerous, distant, round warts or prominences, approaching more or less to an acute form in different individuals, and sometimes obtuse: beneath each thigh is a row of perforated papillæ, as in the Green Lizard and many others: the under parts of the body are covered with scales of somewhat dissimilar appearance, but all approaching to a round figure.

The Gecko inhabits obscure recesses, caverns, old walls, trees, &c. &c. and wanders about chiefly on the approach of rain. It is considered as of a poisonous nature, a highly acrimonious kind of fluid exsuding from the lamellæ of the feet, which remaining on the surface of fruit or any other edible substance is often productive of troublesome symptoms to those who happen to swallow it. From the peculiar structure of its feet, the Gecko can readily adhere to the smoothest surfaces. The general colour of the animal is pale brown, with a few irregular dusky or blueish variegations, but in those which inhabit the warmer regions of the globe this colour seems to be exalted into a much more brilliant appearance.

*Var.?*

## TOKAI.

This kind is described by the Jesuit Missionaries from Lewis the fourteenth to Siam. Its

length is about a foot: the body is covered above by a granulated skin, varied with red and blue undulations: the back is roughened by a great many longitudinal rows of pale blue conical protuberances: the belly is cinereous, scattered over with red spots: the head large and triangular: the eyes very large: tongue flat: feet divided into lamellæ beneath; by the help of which the animal adheres to the smoothest surfaces, as if agglutinated to them. It occasionally enters the houses of the Siamese; is considered by them as a poisonous animal, and is called by the title of *Tokai.*

Bontius, in his history of Java, appears to describe a similar kind, under the name of the Indian Salamander. It is called *Gecco* by the Javanese, on account of its shrill cry. Its length is about a foot, and its colour sea-green, spotted with red: the head large and toad-like; the eyes large and extremely protuberant: the body broad, and the tail long. The Javanese are said to hold up the animal by the tail, in order to make it discharge its foam or sanies from its mouth, which they collect in order to poison their arrows with.

## GECKOTTE.

Lacerta Dubia. *L. livida supra aculeato-verrucosa, papillis femoralibus nullis.*

Livid Gecko, with pointed warts on its upper surface, and no femoral papillæ.

Le Geckotte. *Cepede ovip. p.* 420.

This is described by the Count de Cepède, who informs us that it is so nearly allied to the Gecko, that, without an attentive survey, it might be easily confounded with it: it is distinguished, however, by its somewhat thicker or shorter form, both in body, limbs, and tail, as well as by the defect of subfemoral papillæ: the upper parts are tuberculated, as in the former species, the tubercles appearing most pointed about the neck, sides, and tail, which latter, in the young animal, is divided into strongly-marked aculeated verticilli, owing to the scales with which it is at that time covered; but, as the animal advances in age, the verticilli become gradually less conspicuous, and are at length entirely obliterated, so that the part appears smooth, as well as much shorter than in its younger state.

This species is found in the south of France, where it is called *Tarente*: it inhabits ruins, walls, houses, &c. delighting much in sunshine, and being never found in damp shady situations. In winter it lies concealed in the hollows of walls, beneath tiles, &c. where it remains in an inert, but not a torpid state. It is regarded as innocent,

and has no particular voice or cry. The Count de Cepede appears to suppose it the L. Mauritanica of Linnæus, but Mr. Schneider assures us, that this is a mistake.

## PERFOLIATED GECKO.

Lacerta Perfoliata. *L. subfusca supra læviuscula, lamellis pedum sulco divisis, cauda (sæpius) subturbinata.*

Brownish Gecko, nearly smooth above, with the lamellæ of the feet divided by a furrow, and tail (frequently) turbinated.

Stellio perfoliatus. *Schneid. Amph. Phys. Spec. Alt. p. 26.*

This species also is so extremely nearly allied to the common Gecko, that it might pass for the same animal, except that it is of a somewhat thicker form, with shorter limbs, and is less distinctly marked by tubercles on the back, which is rather covered by small conical scales or granules: it is also destitute of subfemoral papillæ: the lamellæ of the feet are divided by a midrib, or longitudinal furrow, and the claws are sheathed or retractile: the tail is of similar form to that of the common Gecko, but appears to be liable to a singular variation, in which it is remarkably swelled immediately beyond its origin, and gradually tapers again to the extremity, so as to resemble the form of a young turnep root; being shorter than the body itself: this variation, if such it be, has been considered by some authors as a distinctive character, and the animal has been accordingly named *Lacerta rapicauda*, under which

title it stands in the Gmelinian edition of the Systema Naturæ. A specimen of similar character is preserved in the British Museum, as well as in the Leverian, and from the general tenor of the descriptions given by authors, it appears to be more frequently seen in this state than in what Mr. Schneider considers as its truly natural one. Mr. S. names it the Perfoliated Gecko, from the appearance of the under surface of the feet, the lamellæ of which, being traversed by a longitudinal midrib, represent in some degree the structure of the leaves in a perfoliate plant. The colour of this species is cinereous, clouded or marbled with brown variegations. Upon the whole, I cannot help suspecting, that this is, in reality, the same animal with the preceding, or Geckotte.

## MAURITANIC GECKO.

Lacerta Mauritanica. *L. tota supra mucronato-verrucosa, cauda planiuscula subtus scutis tecta, pedum lamellis divisis lunulatis.*

Brown Gecko, entirely covered above with sharp warts, with the tail nearly flat and furnished with scuta beneath, and with the lamellæ of the feet lunulated and divided.

Stellio Mauritanicus. *Schneid. Phys. Amph. Sp. Alt. p.* 24.

Salamandra Ceilonica. *Seb.* 1. *p.* 170. *t.* 108. *f.* 4, 5, 6, 7. ?

Lacerta Mauritanica. *L. cauda subverticillata brevi muricata apice lævi, corpore supra muricato, digitis subtus lamellatis muticis. Lin. Syst. Nat. p.* 361.

The Mauritanic Gecko is of similar aspect to the first or common species, but is covered with

spiny or sharp-pointed warts on its upper surface: the tail also is distinctly verticillated by rows of spiny processes: the toes are lamellated beneath, but not divided by a middle sulcus, and are furnished with small claws: beneath the thighs is a short row of papillæ: the tail is flattish beneath, and covered with broad transverse scales, and the principal or most strongly-marked joints or verticilli are the six superior ones. Mr. Schneider, who seems to be never weary of censuring the Count de Cepede, complains that that gentleman has erred in comparing this with a very different species, and that he never could have seen the animal.

## CHINESE GECKO.

Lacerta Sinensis. *L. cauda ancipite, digitis omnibus unguiculatis, facie foraminibus pluribus pertusa. Schneid. Amph. Phys. Sp. Alt. p.* 28.

Gecko with flat tail, all the toes unguiculated, and the face perforated by several pores.

This was first described by Osbeck, who observed it in China, where it is frequently seen in houses, running about the walls, and climbing with extreme readiness on the smoothest surfaces, preying chiefly on the smaller kind of Blattæ. The head is broad and flat; the teeth small; the tongue flat and emarginated at the tip: the body flat, broad, and compressed at the sides: the back beset with black and whitish tubercles: the tail

rather longer than the body, and flat or ancipital*: the toes lamellated beneath, and all furnished with claws: the colour of the upper parts is cinereous; the abdomen white; and the tail variegated by ten or eleven blackish clouds or bars: about the sides of the nose and eyes are several scattered pores. This species is considered as perfectly innoxious. It appears to be omitted in the Gmelinian edition of the Systema Naturæ.

## WHITE-STRIPED GECKO.

Lacerta Vittata. *L. fusco-flavescens, fascia dorsali alba super caput furcata.*

Yellowish-brown Gecko, with a white dorsal band forked over the head.

L. vittata. *L. cauda tereti longa, dorsi vitta alba dichotoma. Lin. Syst. Nat. Gmel. p.* 1067. *Houttuyn. Act. Uliss.* 9. *p.* 325. *t.* 2.

Stellio bifurcifer. *Schneid Amph. Phys. Spec. Alt. p.* 21.

The White-striped Gecko is one of the smaller species, measuring about seven or eight inches in length, and is of a somewhat more slender form than the rest: the head is large in proportion to the body; the limbs of moderate length; and the tail, which is slightly verticillated towards the base, is rather slender, and scarcely equal to the body in length: the toes are lamellated beneath, marked by a sulcus or middle division, and ter-

* It is not clear, from Osbeck's description, whether the tail be vertically or laterally compressed.

minated by curved claws. This species is readily distinguished from all others yet discovered by its colour, being of a yellowish brown, marked on the back, from head to tail, by a very distinct white band, which on the head divides into a forked appearance, and at the commencement of the tail into two short rounded tips: the slender part of the tail, commencing beyond the three first rings, is of the same pale or white colour, marked longitudinally with several short, brown, scattered streaks. The whole upper surface of the animal is beset with extremely small tubercles, so minute as not to be perceived without a close inspection. It is said to be a native of India.

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## FIMBRIATED GECKO.

Lacerta Fimbriata. *L. corpore utrinque margine membranaceo fimbriato, cauda plana, pedum lamellis sulco divisis.*

Gecko with membranaceous fimbriated border on each side of the body, flat tail, and lamellæ of the feet divided by a furrow.

Stellio fimbriatus. *Schneid. Amph. Phys. Sp. Alt. p.* 32.

La Tete-Plate. *Cepede Ovip. p.* 425. *pl.* 30.

This remarkable species seems to have been first described by the Count de Cepede, who informs us that it appears in some degree to connect the Chameleon, the Gecko, and the Water Newts; the head, skin, and general form of the body resembling those of the Chameleon, the tail that of the Water Newts, being of a compressed form, though in a different manner (not vertically but

horizontally flattened), while the feet resemble those of the Gecko. The largest specimen examined by the Count de Cepede measured about eight inches and six lines in length, of which the tail measured two inches and four lines. The head is very large, and much flattened: the eyes large; the opening of the mouth wide; the teeth very small and numerous, and the tongue broad, divided, and resembling that of the Gecko: the lower jaw is so thin or flat, that one would at first imagine the lower part of the head to be wanting: the outline of the whole head, viewed from above, is almost triangular, as in the Chameleon; but the triangle is of a much longer form, and without any rising casque or crest as in that animal: the body is about twice the length of the head, and is bordered by a membrane or prolongation of the skin, which, commencing on each side the head, is continued along those of the body, forming a kind of fringed or fimbriated process, which also passes down each leg, separating the upper surface from the lower: the tail, which, as before observed, is much shorter than the body, is so formed as to resemble, in some degree, the shape of an oar; being expanded into a wide membranaceous part on each side, the true tail, or middle part, being taper and small: the legs are rather short: the feet divided into five toes, connected at their origin by the skin of the legs, but much divided and expanded at their tips, and are all furnished beneath with a number of transverse lamellæ, as in the rest of the Gecko tribe: the skin on all parts resembles

that of the Chameleon, being covered with small protuberances, so as to give it a somewhat chagrin-like appearance. The colour of this animal is not constant or permanent, as in most lizards, but variable, as in the Chameleon, presenting successively different shades of red, yellow, green, and blue. This variation of colour is, however, confined to the upper surface of the animal; the lower always continuing of a bright yellow. These changes, we are informed, have been observed in the living animal by Mons. Bruyeres in its native country, viz. Madagascar, where it is not very uncommon, and where, though a harmless animal, it is held in great abhorrence by the natives, who consider it as of a poisonous nature, and fly from it with precipitation; pretending that it darts on their breast, and adheres with such force by its fringed membrane that it cannot be separated from the skin without the assistance of a razor. The principal cause of this popular dread of the animal, is its habit of running open-mouthed towards the spectator, instead of attempting to escape when discovered. Its chief residence is on the branches of trees, where it lives on insects, holding itself secure by coiling its tail, short as it is, half round the twig on which it sits. It chiefly appears in rainy weather, when it moves with considerable agility, often springing from bough to bough. On the ground it walks but slowly, the fore legs being shorter than the hinder.

## FOUR-TOED GECKO.

Lacerta tetradactyla. *L. lutea viridi variegata, pedibus tetradactylis, cauda plana.*

Yellow Gecko, varied with green, with tetradactyle feet, and flat tail.

Stellio tetradactylus. *Schneid. Amph. Phys. Sp. Alt. p.* 33.

Le Sarroube. *Cepede ovip. p.* 493.

THIS was first described by the Count de Cepede, from an account communicated by Mons. Bruyeres. It is very nearly allied to the Fimbriated Gecko, but differs in wanting the fimbriated margin, and in the number of toes on the fore feet, which are only four. Its length is about twelve inches: the head flat and oblong: the eyes large, with the pupils vertical: the neck long, and covered above with a double row of yellow scales; the back with a granulated yellow skin, marked with green spots or variegations: the abdomen is covered with yellow scales: in the form of the feet and tail it agrees with the preceding, except, as before observed, in having only four toes on the fore feet, for which reason the Count de Cepede has stationed it among the Salamanders. It is a native of Madagascar, where it is held in equal detestation with the former species. Its native name is *Sarrube.* It inhabits woods, and appears chiefly during the rainy season, and by night.

## SCOLLOP-TAILED GECKO.

Lacerta Caudiverbera. *L. cauda depresso-plana pinnatifida, pedibus palmatis. Lin. Syst. Nat. p.* 359.
Gecko with flat pinnatifid tail and palmated feet.
Salamandra aquatica ex Arabia. *Seb.* 2. *p.* 109. *t.* 103. *f.* 2.

THIS curious species is described by Seba, who represents it as a native of Arabia. Its total length is about sixteen inches, of which the tail measures something more than half. The head is large and flattish, the mouth wide, the tongue broad, the teeth small and numerous, the neck short, the throat protuberant, the body thick, and the limbs rather short than long: the fore feet are apparently formed like those of the rest of the Gecko tribe: the hind feet are of a similar form, but strongly palmated: the tail tapers gradually to the tip, but is edged throughout its whole length with a broad and deeply-scolloped fin or membrane, which gradually widens as it approaches the tip, where it is considerably broader than on the sides. The whole animal is covered, except on the head, with a smooth* skin of a yellow colour; the back being marked by numerous, distant, red tubercles or granules, each surrounded by a circle of small white scales: the thighs and middle part of the tail are also spotted with similar red tubercles, but not surrounded by white scales like those on the

* By this Seba may perhaps mean a finely-scaled skin rather than a naked one.

Grant Sculp.

1801 Dec.r 1. London Published by G. Kearsley, Fleet Street.

back: the webs of the hind feet and the scolloped or finny part of the tail are of a bright red: all the toes are furnished with claws. It is an extremely rare animal, and its full history does not appear to be clearly understood.

VAR.?

Caudiverbera Peruviana. *Laur. Amph. p.* 34. *Feuillée Per.* 2. *p.* 319.

FEUILLÉE, in his account of Peru, describes a species in many respects allied to the above, but of a blueish black colour.

Mr. Schneider, who ranks the L. Caudiverbera among the rest of the Geckos, observes, that there is some confusion in the Count de Cepede's work relative to this species and the American Crocodile of Seba. "Gallus De la Cepede omnem animalis notitiam, appositis licet locis civis sui Feuillée et Laurenti, plane pervertit. Scilicet is nescio quo glaucomate oculis subito oborto in Systemate Linnæi Sebani Thesauri tomum 1. ejusque tabulam 103. fig. 2. laudatum legere sibi visus est cum Linnæus laudasset eandem tabulam ex tomo altero. Picturam igitur Sebanam, quam tamen ipse suo errore retulerat ad lacertam caudiverberam, improbavit, et recte quidem, eique alteram ejusdem tomi in tab. 106. fig. 1. substituit, quæ Crocodilum Americanum plane expressit, atque ad ejus notitiam recte fuit relata a Laurentio. Cui errori sane gravissimo similes plures reperi in libro

Galli, quos tempore opportuniore alibi coarguam." —*Schneid. Amph.*

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## SCHNEIDERIAN GECKO.

Lacerta Schneideriana. *L. cinerea, cauda supra convexa infra plana, fascia utrinque capitis nigra, pedum lamellis lunulatis divisis.*

Grey Gecko, with tail convex above and flat below, a black band on each side the head, and the lamellæ of the feet lunulated and divided.

Stellio platyurus. *Schneid. Amph. Sp. Alt. p.* 30.

Slightly described by Mr. Schneider, who considers it as a species before unnoticed: size not mentioned: colour cinereous, with a brown band on each side the head, running across the eyes over the shoulders: along each side of the body a kind of suture or wrinkling of the skin: tail broad, convex above, flat below, and edged with a row of longer and sharper scales than on the other parts.

### SPARMANN'S GECKO.

Lacerta Sparmanniana. *L. corpore supra papilloso, cauda lanceolata mediocri, palmis tetradactylis.*

Gecko with the body papillated above, lanceolate tail of moderate length, and tetradactyle fore feet.

Lacerta Geitje. *Lin. Syst. Nat. Gmel. p.* 1068.
*Sparmann Act. Gothenb.* 1. *p.* 75. *t.* 5. *f.* 1.

This small species, which does not exceed three inches in total length, is found at the Cape of Good Hope, where it is considered as a poisonous animal, the saliva, secreted moisture from its pores, &c. being said to produce tumours and even gangrenes, which are sometimes cured by the application of citron juice, but if too much neglected, are productive of very dangerous symptoms. It seems to have been first described by Sparmann. Its colour on the upper parts is a variegation of darker and lighter shades, and on the under parts whitish.

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### SPITTING GECKO.

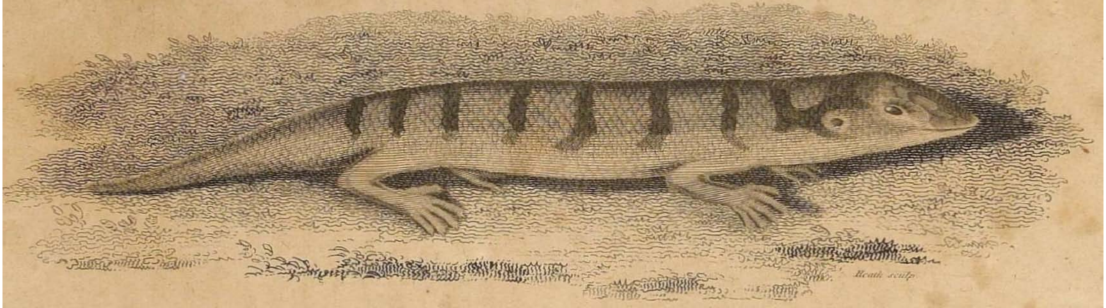
Lacerta Sputator. *L. cinerea, supra fasciis transversis fuscis, cauda tereti subtus scutata.*

Grey Gecko, marked above with brown transverse bands, with round tail scutated beneath.

Lacerta Sputator. *Sparm. Nov. Act. Stockh.* 5. *n.* 9. *t.* 4. *f.* 1—3.

This also is a small species, scarce exceeding four inches in total length, and being often found

much smaller: the tail is but little longer than the body: the colour of the upper parts pale cinereous, with several bands or transverse patches of brown, which gradually vanish towards the tip of the tail: the limbs are banded in the same manner: the under parts are pale cinereous or whitish: the tongue oblong, flattish, rounded, and slightly divided at the tip: the feet are divided into five toes, without claws, and terminated by a kind of dilated tips: the scales on the whole animal are smooth or glossy; the tail round and taper, and furnished beneath with a row of small scuta. This species is a native of the island of Eustatia, and occasionally strays into houses, and about woodwork, walls, &c. When disturbed by a near approach, it is said to ejaculate from its mouth a black acrimonious fluid into the face of the spectator; thus causing a slight inflammation of the skin, which is commonly dispersed by rubbing the part with camphorated spirit of wine. The exact structure of the lower surface of the feet in this species is not distinctly described, but there is reason to suppose that it belongs to the Gecko tribe.



Heath sculp.

OFFICINAL SCINK.

1802 Jan.y 1. London Publish'd by G Kearsley Fleet Street.

## *Scinks, with round fish-like scales.*

### OFFICINAL SCINK.

Lacerta Scincus. *L. fusco-flavescens, supra fasciis transversis fuscis, cauda brevi apice compressa, maxilla superiore longiore.*

Yellowish-brown Lizard, with transverse brown bands on the upper part, short tail with compressed tip, and upper jaw longer than the lower.

Lacerta Scincus. *L. cauda tereti mediocri apice compressa, digitis muticis marginatis. Lin. Syst. Nat. p.* 365.

Scincus. *Raj. Quadr.* 271.

Scincus major. *Besl. Fascic. Rarior. t.* 2. *f.* 1.

The Common or Officinal Scink.

The Scink is one of the middle-sized or smaller lizards, and is a native of many of the eastern parts of the world. It abounds in Lybia, Syria, Egypt, and Arabia, frequenting moderately dry and sandy soils, and growing to the length of six or seven inches, or even sometimes more. The head of the Scink is rather small than large, the body thick and round, and the tail in general considerably shorter than the body. The whole animal is of a pale yellowish brown colour, with a few broad, dusky, transverse undulations or zones, and is uniformly covered with moderately large or fish-like scales, lying extremely close and smooth, so that the surface has a glossy or oily appearance. It is an animal of harmless manners, and, like most other lizards, supports itself on the various insects which wander about the regions it inhabits.

This animal was once in high estimation as an article in the Materia Medica, and the flesh, particularly of the belly, was supposed to be diuretic, alexipharmic, restorative, and useful in leprous and many other cases; but whatever virtues it may possess when used fresh, it is not considered as of any importance when in its dried or imported state, and while it continued to be used in practice served only to increase the number of ingredients in that curious remnant of what Dr. Lewis happily terms the wild exuberance of medical superstition in former ages, the celebrated *Confectio Damocratis*, or Mithridate.

The Scink is described and figured by Mr. Bruce under the name of *El Adda*, and is said to be extremely common in the province of *Atbara*, in Abyssinia.

" It burrows," says this author, " in the sand, and performs this operation so quickly, that it is out of sight in an instant, and appears rather to have found a hole than to have made one, yet it comes out often in the heat of the day, and basks itself in the sun; and if not very much frightened, will take refuge behind stones, or in the withered, ragged roots of the absinthium, dried in the sun to nearly its own colour. Its length is rather more than six inches: though its legs are long, it does not make use of them to stand upright, but creeps with its belly almost close to the ground. It runs, however, with very great celerity. It is very long from its shoulder to its nose, being nearly two inches: its body is round, having scarce any

flatness in its belly: its tail too is perfectly round, having no flatness in its lower part: it is exceedingly sharp-pointed, and very easily broke, yet I have seen several where the part broke off has been renewed, so as scarcely to be discernible: it is the same length between the point of the tail and the joint of the hinder leg, as was between the nose and the shoulder of the fore leg: its forehead, from the occiput, is flat, its shape conical, not pointed but rounded at the end, in the shape of some shovels or spades: the head is darker than the body; the occiput darker still: its face is covered with fine black lines, which cross one another at right angles like a net: its eyes are small, defended with a number of strong black hairs or eye-lashes: its upper jaw is longer, and projects considerably over the under: both its jaws have a number of short, fine, but very feeble teeth, and, when holding it in my hand, though it struggled violently to get loose, it never attempted to make use of its teeth; indeed it seems to turn its neck with great difficulty: its ears are large, open, and nearly round: its body is a light yellow, bordering on straw colour, crossed with eight bands of black, almost equally distant, except the two next the tail: all these decrease both in breadth and length from the middle towards each extremity of the animal: the scales are largest along the back; they are very close, though the divisions are sufficiently apparent: their surface is very polished, and seems as if varnished over: its legs, from the shoulder to the middle toe, are nearly an

inch and three quarters long; its feet are composed of five toes, the extremity of each is armed with a brown claw of no great strength, whose end is tipped with black."

Mr. Bruce adds, that the El Adda is one of the few lizards which the Arabs in all times have believed to be free from poisonous qualities, and yet to have all the medical virtues they have so abundantly lavished upon the more noxious species: their character, however, as a medicine, seems to be greatly on the decline in their native regions, and though the books prescribing them are in every body's hands, yet the medicine is not now made use of in the places where the books were written, which affords a pretty strong proof that it was never very efficacious.

Mr. Bruce observes, that lizards in general are peculiarly numerous in the eastern regions. The desert parts of Syria, bordering on Arabia Deserta, abound with them beyond a possibility of counting them.

"I am positive," says Mr. Bruce, "that I can say, without exaggeration, that the number I saw one day, in the great court of the temple of the Sun at Balbec, amounted to many thousands: the ground, the walls, and stones of the ruined buildings, were covered with them, and the various colours of which they consisted made a very extraordinary appearance, glittering under the sun, in which they lay sleeping and basking."

LONG TAILED SCINK.

Heath sculp.

GREATER SCINK.

1801 Jan.^y 1 London Published by G. Kearsley Fleet Street.

## GREATER SCINK.

Lacerta Rufescens. *L. rufo flavescens, pedibus brevibus, cauda mediocri.*

Yellowish-rufous Lizard, with short feet, and tail of moderate length.

Lacertus Cyprius scincoides. *Aldr. ovip. p.* 660.

L. aurata.? *L. cauda tereti longiuscula, squamis rotundatis glabris, lateribus subfuscis. Lin. Syst. Nat. p.* 568.

Lacerta maritima maxima, seu Crocodilus ex Arabia. *Seb.* 2. *p.* 112. *t.* 105. *f.* 3.

This species much resembles the common or officinal Scink, but is considerably larger, measuring fifteen inches or more in length, from the nose to the end of the tail, which latter is longer in proportion than that of the Scink. The colour of the whole animal is a pale rufous brown, with a still paler stripe down the back, and along each side: the head is covered in front with large angular scales; the body, limbs, and tail, with rounded ones, which are more distinctly expressed, or not quite so glossy and closely pressed to the skin as in the true Scink: the legs are short and thick, the feet pentadactyle and furnished with small claws. It is, according to Seba, a native of Arabia and Egypt, living both in land and water, and often frequenting the shores of the Nile, &c. It seems also to be found in some of the European islands, and in particular in that of Cyprus, since the Lacertus Cyprius Scincoides of Aldrovandus appears to be the same animal: this latter is represented as of a deeper colour on the sides than on

the back, with a pale lateral line, and is commonly quoted as the Lacerta aurata of Linnæus, which that author describes as being of a beautiful gilded hue, while living, which is lost in the dead specimen. It is probably most remarkable in the young or half-grown animals, specimens sometimes occurring, of a small size, in which the gilded tinge of the scales, and brown lateral stripe, are very conspicuous.

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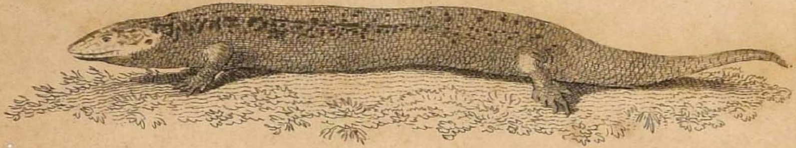
## LONG-TAILED SCINK.

Lacerta longicauda. *L. olivacea-flavescens, cauda longissima.*
Olivaceous-yellow Lizard, with extremely long tail.
Scincus marinus Americanus longa cauda. *Seb. 2. p.* 11. *t.* 10. *f.* 4.

This is considered by Dr. Gmelin as a variety of the common Scink; yet it differs so much from that animal, by its great length of tail, that it is in all probability a very distinct species. It is, according to Seba, a native of America, and is said to frequent the sea coasts, and to feed on small crabs and spiders. Its colour is a greenish yellow, deeper or lighter in different individuals.

MABOUYA SCINK.



AUSTRALASIAN GALLIWASP.

Heath sculp.

1802 Jan.1 London Publish'd by G. Kearsley Fleet Street.

## MABOUYA SCINK.

Lacerta Mabouya. *L. subaurato-flavescens, lateribus subfuscis, pedibus brevibus, maxillis æqualibus, cauda mediocri.*
Gilded-yellowish Lizard, with brownish sides, short legs, jaws of equal and tail of middling length.
Le Mabouya. *Cepede ovip. p. 378. pl. 34.*

The Mabouya, according to the Count de Cepede, who has described and figured it in his History of Oviparous Quadrupeds, is extremely allied to the Scink, from which, indeed, on a cursory view, it scarce differs, except in having somewhat shorter legs in proportion, and jaws of equal length; whereas in the Scink the upper jaw is longer than the lower. The length of the individual described by the Count de Cepede was eight inches: the ground colour is a kind of gilded yellow *, but the scales on the back are sometimes much darker with a white speck or line on each: along the sides of the body runs a dusky or deep brown band, beneath which the colour is much paler, forming almost a white band: the colour of this animal, however, like that of the preceding species, appears to vary in different specimens. It is a native of America, as well as of Jamaica and other West-Indian islands. It is also found, according to Cepede,

* This species seems much allied to the *L. aurata* of Linnæus, the synonyms to which in the Systema Naturæ seem to be applied with no very great precision.

in some parts of the old continent, and in particular in the island of Sardinia, where it is known by the name of *Tiligugu.*

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## GALLIWASP.

Lacerta Occidua. *L. subfusca, fasciis subundulatis transversis fuscis, pedibus brevibus, cauda mediocri.*
Brownish Lizard, with subundulated transverse bands, short legs, and tail of middling length.
Galliwasp. *Sloan. Jam. 2. pl. 273. f. 9.*
*Brown, Jam. p. 463.*

The Galliwasp differs from the L. rufescens, or Greater Scink, in being of a still larger size, and of a thicker form, as well as in having a somewhat shorter tail in proportion; but so great is the general similarity, that it might almost be considered as a variety rather than as truly distinct.

The general length of the Galliwasp is nearly two feet, from the nose to the tip of the tail, which, like the body, is thick and strong, tapering pretty suddenly towards the tip: the limbs are short, and the whole appearance of the animal remarkably stout and plump: the teeth are small in front, but as they approach the back part of the jaws they gradually increase in size, and much resemble the molares in the Mammalia. The Galliwasp is a native of the American islands, and seems to be particularly common in Jamaica, where it is said to frequent woody and marshy

districts. It is commonly of a palish brown colour, clouded with somewhat irregular bands of a deeper cast; but it is said occasionally to change its colour into a lively golden yellow. A similar change of colour seems also to take place in the Greater African Scink before described, since it is by some authors named *aurata*, though the real L. aurata of Linnæus, from the very brief specific character in the Systema Naturæ, seems not very easily determinable. The Galliwasp, according to Browne, in his Natural History of Jamaica, is reckoned the most venomous reptile in that island, and it is said that no creature can recover from its bite; but this he very properly considers as merely a popular error. It grows, according to that author, to two feet or more in length.

### VAR.?

Australasian Galliwasp.
Lacerta Scincoides. Scincoid Lizard. *Nat. Misc. pl.* 179.
Scincoid, or Scink-formed Lizard. *White's Journal of a Voyage to New South Wales, p.* 242. *pl.* 30.

This I consider as a variety of the preceding, with which it agrees in size and general appearance, but has larger scales, a longer tail in proportion, and is of a somewhat darker colour; the sides and tail being variegated with deep brown and somewhat irregular transverse bands, and on each side the neck is commonly a longitudinal brown spot or patch. It is a native of New Holland, and is very accurately figured

in Mr. White's Journal above referred to. The tongue in this, as well as in the other Scinks, is short, flat, rounded, and entire; not forked as in most Lizards.

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## SPOTTED SCINK.

Lacerta Guttata. *L. cauda tereti longa maculis quatuor transversis & apice nigris, corpore supra cano albido guttato, subtus albido. Lin. Syst. Nat. Gmel. p.* 1078. *Lepechin. it.* 1. *p.* 317. *t.* 22. *f.* 2, 3.

Grey Lizard, spotted with white, with long tail marked by four transverse black bands and with black tip.

A VERY small species, not much exceeding three inches in length: sufficiently described in the specific character: native of the *Ural* desert, where it was observed by *Lepechin.*

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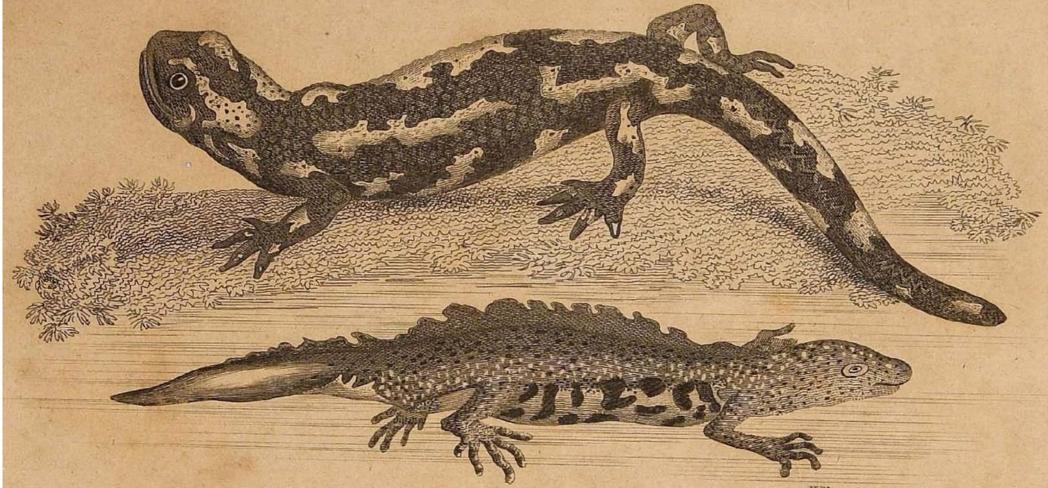
## OCELLATED SCINK.

Lacerta Ocellata. *L. cauda tereti brevi corpore subtus albo, supra ex griseo virescente, ocellis subrotundis radio fuscis, disco rectangulo albis. Lin. Syst. Nat. Gmel. p.* 1077. *Forsk. F. Arab. p.* 13.

Greenish-grey Lizard, white beneath, marked above with roundish ocellated brown spots with white rectangular disks.

LENGTH about a span: body depressed: feet short, pentadactyle: no femoral warts: the other particulars sufficiently described by the specific

SALAMANDER.



*Hill sculp.*

GREAT WATER-NEWT.

1801 Jan.y 1. London Publish'd by G. Kearsley Fleet Street.

character: native of Egypt, about the neighbourhood of houses, &c.: observed by Forskal.

## *Salamanders, Newts, or Efts.*

### SALAMANDER.

Lacerta Salamandra. *L. nigra luteo maculata, cauda tereti mediocri.*

Black Lizard, spotted with gold-colour, with tail of middling length.

Lacerta Salamandra. *L. cauda tereti brevi, pedibus muticis, palmis tetradactylis, corpore poroso nudo. Lin. Syst. Nat. p.* 371.

Salamandra terrestris. *Aldr. Quad.* 641. *Raj. Quadr.* 273. *Gesn. Quadr.* 80.

The Salamander, so long the subject of popular error, and of which so many idle tales have been recited by the more ancient naturalists, is an inhabitant of many parts of Germany, Italy, France, &c. but does not appear to have been discovered in England. It delights in moist and shady places, woods, &c. and is chiefly seen during a rainy season. In the winter it lies concealed in the hollows about the roots of old trees; in subterraneous recesses, or in the cavities of old walls, &c. The Salamander is easily distinguished by its colours; being of a deep shining black, variegated with large, oblong, and rather irregular patches of bright orange-yellow, which, on each side the back, are commonly so disposed as to form a pair of interrupted longi-

tudinal stripes: the sides are marked by many large, transverse wrinkles, the intermediate spaces rising into strongly marked convexities; and the sides of the tail often exhibit a similar appearance: on each side the back of the head are situated a pair of large tubercles, which are in reality the parotid glands, and are thus protuberant not only in some others of the Lizard tribe, but in a remarkable manner in the genus Rana: these parts, as well as the back and sides of the body, are beset in the Salamander with several large open pores or foramina, through which exsudes a peculiar fluid, serving to lubricate the skin, and which, on any irritation, is secreted in a more sudden and copious manner under the form of a whitish gluten, of a slightly acrimonious nature; and from the readiness with which the animal, when disturbed, appears to evacuate it, and that even occasionally to some distance, has arisen the long-continued popular error of the Salamander's being enabled to live uninjured in the fire, which it has been supposed capable of extinguishing by its natural coldness, and moisture: the real fact is, that, like any of the cold and glutinous animals, as snails, &c. it, of course, is not quite so instantaneously destroyed by the force of fire as an animal of a drier nature would be. The general length of the Salamander is about seven or eight inches, though it sometimes arrives at a much larger size: in the number and form of its spots it varies considerably, and is occasionally seen entirely

black: the tail is somewhat shorter* than the body, and of a round or cylindric form, gradually tapering to the extremity, which is rather obtuse than sharp. Like other Lizards of this tribe, the Salamander lives principally on insects, small snails, &c. its tongue, however, is not so formed as to catch these in a sudden manner, being short, broad, and in some degree confined, so as not to be darted out with celerity. It is capable of living in water as well as on land, and is sometimes found in stagnant pools, &c. Its general pace is slow, and its manners torpid.

A strange error appears to have prevailed relative to the supposed poisonous nature of this animal, and the malignity of its venom has even been considered as scarcely admitting a remedy. On this subject the writings of Gesner and Aldrovandus afford ample information; but it is useless, as well as unpleasing, in these days of general illumination, to detail the absurd and erroneous doctrines of past ages. It may be sufficient to observe, that the Salamander is perfectly innoxious, and incapable of inflicting either wound or poison on any of the larger animals, though it appears, from the experiments of Laurenti, that the common small grey lizard (L. agil. var.) is poisoned by biting a Salamander, and thus swallowing the secreted fluid of the skin; becoming

* It is remarkable, that in the beautiful representation of this animal in the frontispiece to Roesel's Historia Ranarum, the tail is longer than the body; but this must be considered as a rare occurrence.

almost immediately convulsed, and dying in a very short time afterwards.

The Salamander is a viviparous species; producing its young perfectly formed, having been first hatched from internal eggs, as in the Viper, and some other Amphibia. It is said to retire to the water in order to deposit its young, which, at their first exclusion, are furnished with ramified * branchial fins or processes on each side the neck, and which being merely temporary organs, are afterwards obliterated, as in the young of frogs and water-newts. The number of young produced at one birth by the Salamander is said sometimes to amount to thirty or forty.

* On this subject some confusion and disagreement will be found to take place in the works of different naturalists; Mr. Latreille seems to doubt very much whether the Salamander really produces her young in the water, as well as whether they are at first furnished with ramified branchial fins.

## COMMON NEWT.

Lacerta Vulgaris. *L. fusco-flavescens, linea dorsali duplici fusca, abdomine croceo fusco-maculato.*

Yellowish-brown Newt, with a double brown dorsal line, and orange-coloured abdomen, spotted with brown.

Lacerta vulgaris. *L. cauda tereti mediocri, pedibus unguiculatis, palmis tetradactylis, dorso linea duplici fusca. Lin. Syst. Nat. p.* 370. *Faun. Suec.* 283.

Brown Lizard. *Pennant Brit. Zool.* 3. *p.* 23. *pl.* 2.

Common Newt. *Nat. Misc. vol.* 9. *pl.* 118.

This, which is the smallest of the British Lizards, is altogether a terrestrial species. It is commonly seen in gardens, and not unfrequently in the neighbourhood of dunghills, &c. It also occasionally makes its way into cellars in the manner of the slug, the toad, &c. Linnæus, in the twelfth edition of the Systema Naturæ, seems to suppose it an inhabitant of the water during its young or larva state. I can, however, safely affirm, that I have more than once met with specimens in perfectly dry situations, and at a distance from any waters, so extremely minute as scarce to equal half an inch in length, and which yet appeared to differ in no respect, except in magnitude, from the full grown animal. I am, therefore, inclined to suppose it a viviparous species. Its general length is about three inches and a half, and its colour yellowish brown above, with a double, narrow, dorsal line or streak of a deeper tinge; the under parts bright orange, spotted with brown.

## GREAT WATER-NEWT.

Lacerta Palustris. *L. nigricans, lateribus albido-punctatis, abdomine croceo maculis inæqualibus nigris.*

Blackish Newt, with the sides speckled with white; the abdomen orange, with irregular black spots.

Lacerta palustris. *L. cauda lanceolata mediocri, pedibus muticis, palmis tetradactylis.* *Lin. Syst. Nat. p.* 370.

The warted Newt. *Nat. Misc.* 8. *pl.* 279.

The larger or warted Water-Newt is considerably allied to the Salamander in its general appearance, though of inferior size, and marked by a different distribution of colours. It also differs from that species in the highly conspicuous dorsal crest, or elevated and irregularly sinuated process with which the male is furnished. This species, when full grown, measures from about five and a half to six inches in length, and sometimes rather more. Its colour on the upper parts is an extremely dark or blackish brown, the sides being marked with numerous, small, scattered, whitish specks or granulations: the under parts are of a bright orange-colour, variegated with numerous, large, irregular spots or patches of deep black: the tail is of a flattened form, with thin or sharp edges, and with an acute termination: on each side the tail, in the male, is a silvery-white, broad band or stripe, accompanied by a blueish tinge: this lateral tail-stripe, as well as the dorsal crest or process, is generally far less conspicuous, and

even sometimes entirely wanting, in the female: the eyes are of a bright gold-colour; the head rather small than large; the limbs short; the fore feet divided into four, and the hind into five toes, all of which are destitute of claws. This animal is by no means an infrequent inhabitant of the clearer and colder kinds of stagnant waters, and is also occasionally met with in damp and shady situations, under trees, hedges, &c. &c. It is, in this country at least, a much rarer species than the small or common water-newt, with which it appears to have been confounded by some authors, and among others by the Count de Cepede, in his History of Oviparous Quadrupeds. The male is most accurately represented in the present publication, on the same plate with the Salamander, with which, as before observed, it seems to have a considerable degree of affinity. It lives principally on insects. Though an innoxious species, and perfectly incapable of injuring any of the larger animals, yet it appears, from the experiments of Laurenti, that the natural exsudation or secreted moisture of its skin is fatal, like that of the Salamander, to the small varieties of the Lacerta agilis, several of which, on biting this animal, soon became paralytic on the fore legs, were seized with a general weakness, and died without any convulsive motions.

## COMMON WATER-NEWT.

Lacerta Aquatica. *L. olivaceo-fusca nigro maculata, subtus crocea, cauda ancipiti lateribus sinuata.*

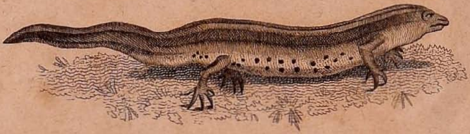
Olive-brown Water-Newt, spotted with black, with orange-coloured abdomen, and sharp-edged sinuated tail.

Lacerta Aquatica. *L. cauda teretinscula mediocri, pedibus muticis, palmis tetradactylis.* *Lin. Syst. Nat. p.* 370.

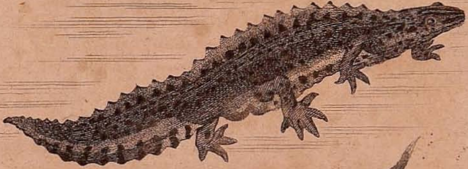
The Smaller or Common Water-Newt. *Nat. Misc.* 11. *pl.* 412.

This, which in England occurs in almost every soft stagnant water, is a much smaller species than the preceding; and though the different specimens occasionally vary very considerably as to the cast of colour, yet the animal may at all times be very readily distinguished from the former. Its general length is about three inches and a half, and it very rarely exceeds that of four inches at most. The male is distinguishable at first sight from the female by its very conspicuous dorsal crest or process, which is broader in proportion, more strongly elevated, and more regularly sinuated than that of the preceding species: the sinuations are continued to the very tip of the tail on the upper part, and take place likewise in a similar proportion on the under part as far as the junction of the tail with the abdomen; whereas in the former species the upper part alone of the tail can properly be said to be crested: this wide process, or sinuated part, is remarkably transparent, and when viewed with a lens of even moderately magfying power, exhibits very distinctly the ramifications of the blood-vessels dispersed through it:

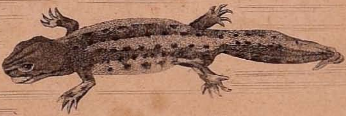
COMMON NEWT.



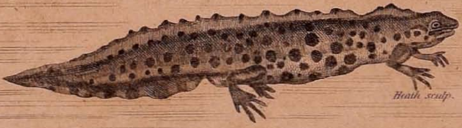
LAC: PUNCTATA. *Latreille*.



LARVÆ *of common Water-Newt*.



LAC: PUNCTATA FEM. *Latreille*.



*Heath sculp.*

COMMON WATER NEWT.

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but if examined by the microscope, is, perhaps, of all other objects that can be selected for that purpose, the most eligible for exhibiting a general view of the circulation; shewing, in the most distinct and beautiful manner, the rapid current of the blood, the particles of which, in this animal, as well as in the rest of the Amphibia, are of an oval form; not round, as in the Mammalia. In the greater Water-Newt, on the contrary, this part, being nearly opake, can by no means advantageously exhibit the same phænomenon. The female is almost destitute of the dorsal crest, but the tail is furnished with an approach to it, though far less conspicuous than in the male. The general colour of the male is olive-brown, beautifully and distinctly marked with numerous, round, black spots, dispersed over every part of the animal, but largest and most conspicuous on the sides and tail: the abdomen is orange-coloured, the black spots often appearing rather less intense on that part than on the back. The female differs very considerably in colour, being generally of a pale yellowish brown, much less distinctly spotted, and from the want of the dorsal crest, might be almost mistaken for a different species by a person inconversant in the history of the animal. On the top of the head, in both sexes, are three or four longitudinal dusky streaks: the eyes are small and gold-coloured: the fore feet tetradactylous; the hind pentadactylous; all destitute of claws, and in some specimens more or less approaching to a kind of palmated appearance towards the base, as

in the sixth figure of the sixth plate of Mons. Latreille's work on the Salamanders of France; which figure appears to me to represent no other than a very fine specimen of the male of the present species, though considered as different by Mons. Latreille, and distinguished by the title of *punctata*. It is certain that the water-newt varies considerably in the cast of its colour at different times of the year, and in different states of the weather, even in the course of the same day; and if taken out of soft water, and suddenly plunged into that of a colder temperature, will almost immediately become of a considerably darker tinge than before. The breadth of the tail, and that of the toes, seems also to be occasionally liable, in this animal, to considerable variation: I cannot, therefore, prevail upon myself to consider all the water-newts described by Mons. Latreille in the above publication as specifically distinct; and it is remarkable that that which Mons. L. expressly describes and figures under the title of *palmata*, is in reality far less palmated than his *punctata*, before mentioned, as will be evident on inspecting the 6th plate of that author's own work.

The Water Newt breeds in the early part of the spring, depositing small oblong* strings or clus-

* According to Spallanzani, the ova are of a kidney-shaped form, and seem, in reality, to be so many ready-formed larvæ, since, long before they leave the gluten in which they are imbedded, their motions are very brisk and frequent: they liberate themselves from the surrounding gluten in about ten days; the branchial fins are visible on their first exclusion, and the rudi-

ters of spawn, from which are soon hatched the larvæ or young, which, for a considerable period, are furnished with a triple pair of ramified branchial fins or processes on each side the neck; thus giving the animal, in some degree, the appearance of a small fish. These parts, after having served their temporary purpose, of assisting the respiration of the animal, during its growing state, are gradually obliterated.

Water-Newts frequently cast their skins, which may be occasionally observed floating in the waters they inhabit, and are sometimes so perfect as to exhibit the whole form of the complete animal.

The Water-Newts are remarkable for a high degree of reproductive power, and have been known to exhibit the restoration of their legs, tails, and even, according to Dr. Blumenbach, of the eyes themselves, after having been deprived of them by cutting. That the eyes of the com-

ments of the fore legs soon begin to appear, and in something more than a fortnight those of the hind legs become visible; the branchial fins become obliterated about the beginning of September, at which time the animal appears in its perfect form. It may be added, that as these animals may be said in some degree to verify the celebrated and seemingly paradoxical case recorded by Averroes, and so wittily commented upon by Sir Thomas Brown *, it should seem that hybrid productions may be more frequent between these than other amphibia; and this may account for the numerous varieties occasionally observed and described by authors.

* Pseudodoxia Epidemica, book vii. chap. 16.

mon green Lizard (Lac. agilis) have been restored to their former fullness and strength after being punctured with a needle so as to let out the aqueous humour, is an observation recorded by Pliny *, and referred to by Mr. Schneider in the first fasciculus of his work entitled *Historia Amphibiorum.*

It has been already observed, in the general description of the Amphibia, at the beginning of this volume, that they are tenacious of life, and that water-newts have been found completely imbedded in masses of ice, in which they must have remained some weeks, or even, perhaps, months, and yet on the dissolution of the ice, have been restored to their former vigour. It is remarkable that they are very readily killed by being plunged into salt water, or rubbed on the back for a short time with common salt.

I must not omit to add, that the *L. palustris* and *aquatica* † have by some writers been consi-

* Speaking of various remedies for blindness, Pliny says, "Lacertas quoque pluribus modis ad oculorum remedia assumunt.—Alii terram substernunt Lacertæ viridi excoecatæ, et una in vitreo vase annulos includunt e ferro solido vel auro: cum recepisse visum lacertam apparuerit per vitrum, emissa ea, annuli contra lippitudinem utuntur."—*Plin. Hist. Nat. lib.* 29. *sect.* 28.

† Linnæus seems not to have understood clearly the nature of this animal; since, after its specific character, in the 12th edit. of the Systema Naturæ, he proposes a question; whether it may not be the Larva of the Lacerta vulgaris? and in a former edition of the same work he appears to think it the Larva of the L. agilis; upon which query Laurenti makes the following observation: "Linnæus interrogat: an forte larva lacertæ agilis? Inepta

dered as constituting merely one of the same species; but this can surely be accounted for on no other supposition than the want of an opportunity of contemplating the animals in their living state. Among those who have thus conjoined, or rather confounded them, must be numbered the Count de Cepede, whose negligence in this respect affords a curious contrast to the opposite extreme of Mr. Latreille and Mr. Schneider.

## LEVERIAN WATER-NEWT.

In the Leverian Museum is a specimen of an extremely large water-newt, supposed to be a non-descript species. Its total length is seventeen inches and a half, of which the tail measures six inches and a half, from the setting on of the thighs, but if measured from the commencement of the upper membranaceous edge, only four inches and three quarters. The head is flattened and shaped somewhat like that of a burbot; the mouth moderately wide; the upper jaw furnished in front with two concentric rows of very numerous, small, setaceous teeth; the rows being set about the eighth of an inch apart: in the under jaw is a single row only: the eyes are small, round, and situated on each side the front of the head,

quæstio! Cl. Du Fay in Act. Gall. ostendit generare oviparam; ostendit præterea, & pinxit metamorphoses, &c. Legat Linnæus, et cessabit tandem interrogare."

and consequently very remote from each other, and not near so far backward as the corners of the mouth: the body is longish, moderately plump or thick, and is pale brown, marked, in a confluent manner, with darker variegations: from the fore to the hind legs runs an obscurely-elevated lateral line: the legs are about an inch in length, and both fore and hind legs are furnished along the whole length of their back part with a dilated skin or crest, which, just above each foot, is sinuated by two pretty deep scollops or insections: the tail resembles that of the common water-newt, but is neither so long nor so deeply finned or crested in proportion, and its termination is rather obtuse than acute: the feet are very small: the fore feet furnished with four, and the hind with five toes, all destitute of claws, or at least the appearance of those parts is but very obscure. No particular history is annexed to the specimen, nor is its native place known.

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## SPOTTED WATER-NEWT.

Lacerta Maculata. *L. nigricans, dorso longitudinaliter duplici serie albo maculato.*

Blackish Water-Newt, with a double row of white spots down the back.

Lacerta punctata. *Lin. Syst. Nat. Gmel. p.* 1076.

Spotted Eft. *Catesb. Car. Append. t.* 10.

This species, according to Catesby, is an inhabitant of ponds, ditches, and other stagnant waters

CHALCIDES LIZARD.

Heath sculp.

1802 Jan.y 1 London Publish'd by G Kearsley Fleet Street.

in Carolina. It is about five inches in length, with a rather large head; the fore feet have four and the hind five toes: its colour is deep brown, with a double row of white spots, from the top of the head to the tail, where it becomes a single row to the end. Catesby adds, that it is equally inoffensive with the common water-newts of Europe.

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## *Snake-Lizards, with extremely long bodies, and short legs.*

### CHALCIDES LIZARD.

Lacerta Chalcides. *L. ferruginea, pedibus tridactylis brevissimis, corpore longissimo lineis sex dorsalibus fuscis.*

Ferruginous Lizard, with very short tridactyle feet, and very long body with six brown dorsal lines.

Lacerta Chalcides. *L. cauda tereti longa, pedibus pentadactylis brevissimis. Lin. Syst. Nat. p.* 369.

Cæcilia major. *Imperat. Nat.* 97.

Lacerta Chalcidica. *Aldrov. Quadr.* 638.

The Chalcides is a native of many of the warmer parts of Europe, as well as of Africa, and is found of different sizes, from the length of a few inches to that of a foot, or even more. Its general length, however, seems to be eight or nine inches The head is covered in front with large scales, and is terminated by a slightly tapering, but not pointed snout: the eyes are small, and the openings of the ears very distinct: there is, properly speaking, no neck, the diameter continuing nearly equal from the head to the begin-

ning of the tail, which is often longer than the body, and gradually tapers to a small point: the legs are very short, and the feet still more so in proportion, consisting each of three toes, terminated by minute claws: the scales, on every part of the body, legs, and tail, are of a shape nearly resembling those of the Scinks, lying smoothly over each other in the manner of those of a fish: the colour of this animal is pale ferruginous or chesnut brown, lighter or of a yellow brown beneath: along the back are six deep brown lines or narrow bands, viz. two somewhat distant ones down the middle, and two approximated ones down each side: in the living animal the colour is generally said to have a kind of metallic or brassy cast, which seems to have given rise to the old name *Chalcides* and *Chalcidica*. This singular Lizard is described by Linnæus as having the feet furnished with five toes, but whatever may have been the case with the individual specimen which he examined, it seems pretty certain that the general number is three. In the British Museum is an elegant specimen, from which the annexed figure is engraved. The Chalcides is an animal of a harmless nature, frequenting moist shady places, moving rather slowly, and feeding on insects, small worms, &c. It is a viviparous species, and is said to produce a great many young. The Serpents to which it bears the nearest alliance, in point of form, are those of the genus *Anguis*, and particularly the *A. fragilis*, or common *Slow-Worm*.

## ANNULATED CHALCIDES.

Chalcide. *Cepede ovip. p.* 443.

THIS, which is described by the Count de Cepede, under the name of *Chalcide*, appears extremely nearly allied to the former, but instead of having imbricated fish-like scales, as in that animal, it is marked into a continued series of annuli throughout its whole length, the scales being square instead of rounded. The specimen described was of a dark colour, with a brassy cast: the body measured two inches six lines in length, being somewhat shorter than the tail: the feet still shorter than in the former species, measuring scarcely more than a line in length, and being all tridactyle: the number of annuli on the body was forty-eight. The native country of this kind seems unknown.

## SERPENT LIZARD.

Lacerta Serpens. *L. capite corpore caudaque continuis cylindricis, pedibus minimis, remotissimis, pentadactylis unguiculatis. Lin. Syst. Nat. Gmel. p.* 1078. *Bloch. Beschr. der Berl. Naturf.* 2. *p.* 28. *t.* 2.

Lizard with head, body, and tail of a continued cylindric form, and very small, remote, pentadactyle feet.

Anguis quadrupes. *A. pedibus quatuor. Lin. Syst. Nat. p.* 390.

THIS, which is a native of Java, measures about five inches and a half in length, and is entirely

covered with imbricated scales: its colour is either cinereous or pale ferruginous above, marked with from fifteen to twenty dusky lines, and beneath cinereous with a silvery gloss.

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## ANGUINE LIZARD.

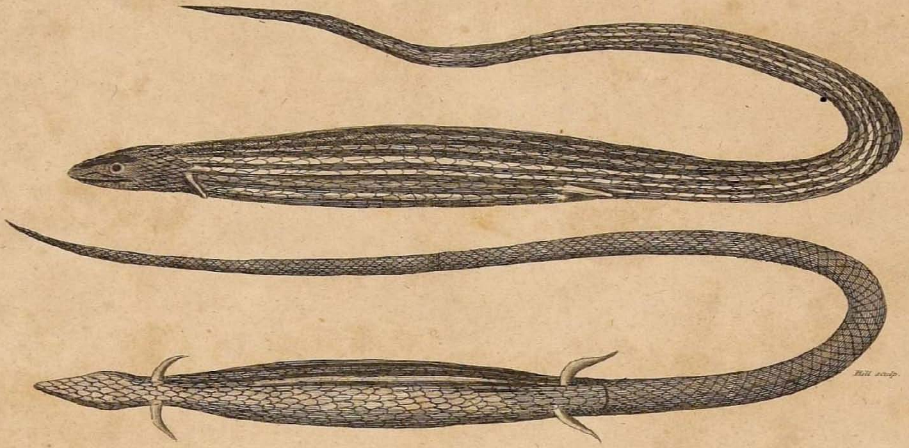
Lacerta Anguina. *L. cauda verticillata extremo rigidula, corpore striato, pedibus adactylis subulatis.* *Lin. Syst. Nat. p.* 371.

Lizard with long body, extremely long tail, and subulated adactyle feet.

Vermis serpentiformis ex Africa. *Seb.* 2. *p.* 70. *t.* 68. *f.* 7, 8.

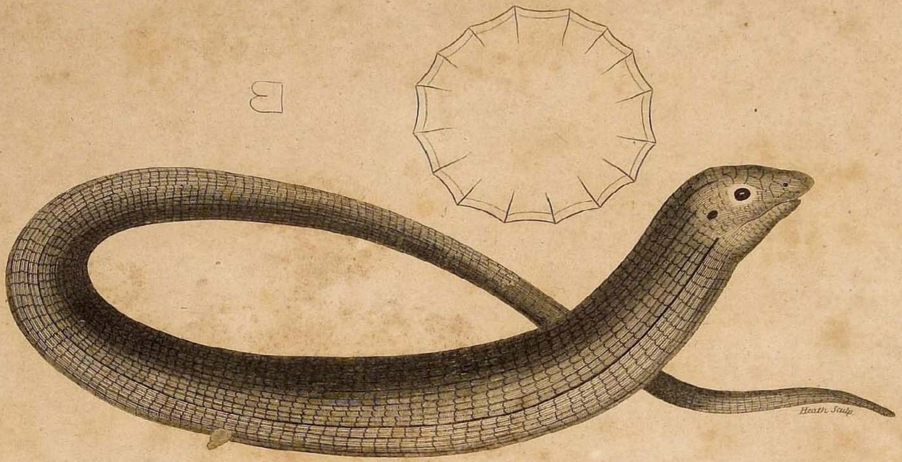
Described by Linnæus, apparently from Seba's figure, which is about fifteen inches in length, the body measuring only four. The head is rather small, the nose taper, the legs very short, placed very near the head and vent, and apparently terminating in one undivided toe or process: the whole animal appears covered with ovate scales, and is brown above, ash-coloured on the sides, and yellowish beneath; the upper surface marked throughout its whole length by several dark lines or stripes. Native, according to Seba, of the Cape of Good Hope, where it is found in great plenty in the water and about the rocks in Table Bay.

# ANGUINE LIZARD.



Hill sculp.

18.2 Jan.1 London Published by G. Kearsley Fleet Street.




APODAL LIZARD.

1801 Dec.r 1 London Publish'd by G. Kearsley, Fleet Street.

## APODAL LIZARD.

Lacerta Apus. *L. anguiformis ferruginea, pedibus anterioribus nullis, posterioribus brevissimis monodactylis.*

Ferruginous snake-formed Lizard, without fore feet, and with very short monodactylous hind feet.

Lacerta apus. *L. capite & corpore continuis una cum cauda longa teretibus imbricatis pallidis, pedibus anterioribus nullis, posteriorum subdidactylorum vestigio. Pall. Nov. Comm. Petrop.* 19. *p.* 435. *t.* 9. *Lin. Syst. Nat. Gmel. p.* 1079.

A STILL nearer approach is made to the snake tribe by this large and singular Lizard, than even by the Chalcides. It is a native of Greece, the Southern parts of Siberia, and doubtless of many other parts of Europe and Asia, though it seems to have been but recently known to naturalists, Dr. Pallas, who discovered it in the south of Siberia, having been its first describer. It is found of the length of near three feet, and so perfectly resembles the general form of a large snake, that it is not without a near inspection that it is ascertained to belong to the race of Lizards; being furnished merely with a pair of very short and somewhat acuminated processes by way of feet, situated at a vast distance from the fore parts of the body, nearly on each side the vent: the processes have no divisions or toes, but seem to form one simple projection, with a slight indenture only: the head is rather large, and covered with large scales: the snout rather taper; the upper jaw somewhat projecting over the lower: the mouth moderately wide: the ears very conspicuous: there is no ap-

pearance of neck; the body tapering in the most gradual manner from the head to the end of the tail, which is longer than the body, and terminates in a point. The whole animal is covered with longitudinal rows of moderately large scales with emarginated tips, and so disposed as to form so many prominent or carinated lines along the surface, in consequence of which a transverse section of the body, in any part, presents a multangular outline. Along each side of the body, from the head to near half the length of the tail, runs a deep continued furrow or channel. The colour of this Lizard is a pale chesnut or ferruginous above, and pale yellow-brown beneath. It is singular that an animal of so large a size should so long have remained unknown to systematic naturalists. Two very fine specimens were brought from Greece by the late Dr. John Sibthorp, Professor of Botany in the University of Oxford, and from one of these was drawn the accurate figure engraved on the annexed plate. The animal frequents moist and shady places, and appears to be of a harmless character.